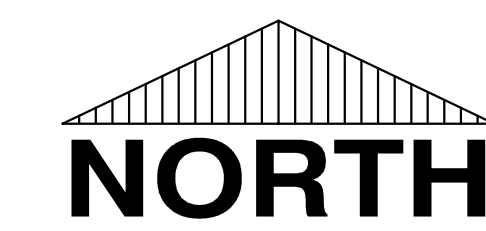
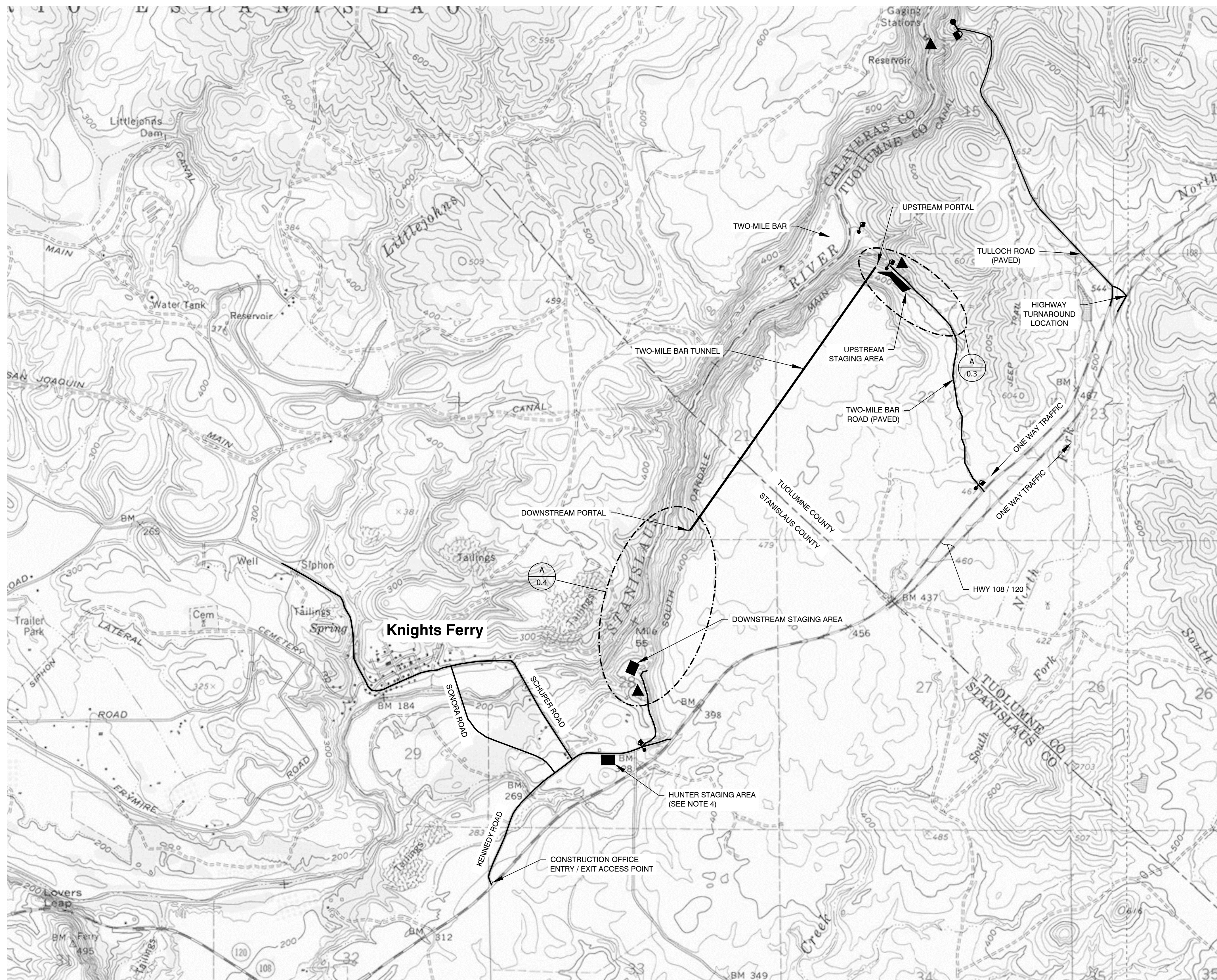


# RECORD DRAWING SHEETS





**LEGEND:**

- ▲ CANAL ACCESS POINT
- ⌘ LOCKED GATE
- ⌘ CLOSED GATE
- TUNNEL

**NOTES:**

1. REFER TO PROJECT CONTRACT DOCUMENTS AND SPECIFICATIONS. FOR SITE ACCESS CONSTRAINTS DUE TO EXISTING SOUTH MAIN CANAL USAGE.
2. TWO-MILE BAR ROAD SHALL REMAIN PUBLICLY ACCESSIBLE DURING ALL AVAILABLE TIMES OF PUBLIC ACCESS.
3. CONTRACTORS ACTIVITIES SHALL NOT INHIBIT THE NORMAL FLOW OF TRAFFIC OR PUBLIC ACCESS TO PUBLIC RECREATION AREAS THROUGHOUT THE PROJECT DURATION.
4. HUNTER STAGING AREA, IF USED FOR OFFICE TRAILERS, SHALL BE IMPROVED BY CONTRACTOR BY MINOR GRADING, PLACEMENT OF AGGREGATE BASE ROCK AND PERIMETER FENCING/GATES PER DETAILS ON SHEET 5.1. SPECIFIC IMPROVEMENTS SHALL BE CONFIRMED BY OWNER PRIOR TO CONSTRUCTION. AT THE OWNERS DISCRETION THESE IMPROVEMENTS MAY NEED TO REMAIN UPON PROJECT COMPLETION.

6

**PORTAL COORDINATES AS-CONSTRUCTED**

POINT No.	DESCRIPTION	NORTHING	EASTING	ELEV.
1	U/S PORTAL TUNNEL ☐	2128417.16	6920950.54	327.98
2	D/S PORTAL TUNNEL ☐	2123570.42	6517533.87	321.28

\* BASIS FOR BEARINGS IS THE CALIFORNIA COORDINATE SYSTEM, ZONE 3, N.A.D. 83

\*\* ELEVATIONS SHOWN ARE GIVEN AS FINISH INVERT ELEVATIONS.



08/02/2019

REV#	DATE	BY	DESCRIPTION
6	08/02/2019	RLS	RECORD DRAWING
3	3/27/2017	RLS	FOR CONSTRUCTION
2	11/1/16	RLS	ISSUED FOR BID
1	01/15/14	RLS	100% DESIGN
0	04/08/13	RLS	90% DESIGN

**OAKDALE IRRIGATION DISTRICT**

SOUTH MAIN CANAL  
TWO-MILE BAR TUNNEL

**SITE LOCATION MAP**

**CONDOR EARTH**  
21663 Brian Lane  
P.O. Box 3905  
Sonoma, CA 95070  
(707) 532-0361  
www.condorearth.com

**SHEET**  
**0.2**

JOB#:	3818G4	DRAWN:	K. MCKINLEY	SCALE:	AS SHOWN
PRINTED:		CHECKED:	S. LEWIS	FILE:	3818G4_02

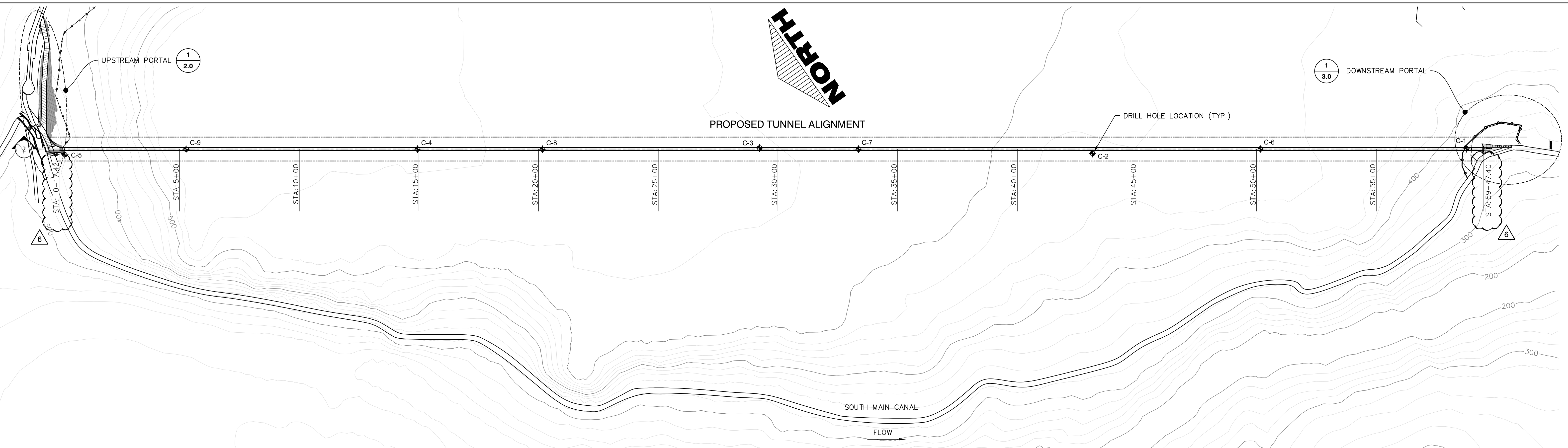
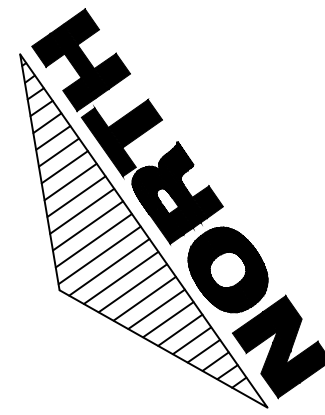
1 **SITE PLAN**

SCALE: AS SHOWN

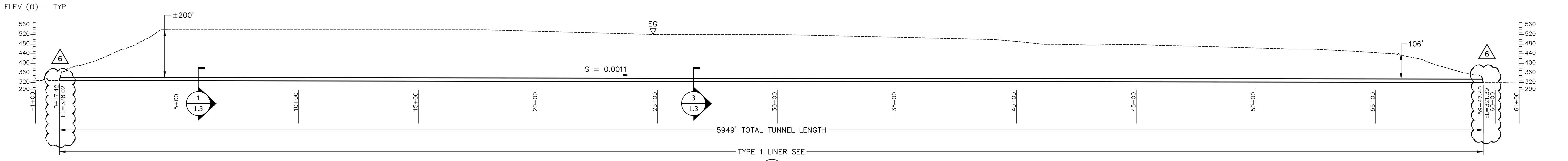


DISCLAIMER: THIS PLAN REPRESENTS FEATURES FOR ILLUSTRATION PURPOSES ONLY. IT IS NOT A LEGAL SURVEY AND IS NOT INTENDED FOR USE IN DETERMINING BOUNDARIES. ANY USE OF THIS PLAN FOR PURPOSES OTHER THAN LOCATION OF FEATURES IS DONE SO AT THE USER'S RISK AND WITHOUT THE CONSENT OF CONDOR EARTH.

X:\Project\3000\_pj\3818G4\_OID\_2-Mile\_Bar\3818G3\_TMB Design and Construction\3818G3\_CADD\GORECORD DRAWINGS\3818G4\_0.2.dwg 8-02-19 02:44:22 PM kmckinley



**1 PLAN** SCALE: AS SHOWN SCALE IN FEET 0 200



**2 PROFILE** SCALE: AS SHOWN SCALE IN FEET 0 200

FINISHED TUNNEL INVERT ELEVATION		AS-CONSTRUCTED TUNNEL BAYS/NOTCHES		
STATION	AS-BUILT ELEVATION	TYPE	APPROXIMATE STATION	
0+17.42	328.02	TRANSFORMER BAY SEE 2 1.3	4+05 TO 4+10	
03+87.40	327.69		8+20 TO 8+40	
08+87.40	327.00		17+20 TO 17+20	
13+87.40	326.61		27+50 TO 27+70	
18+87.40	326.28		28+65 TO 28+85	
23+87.40	325.53		35+45 TO 35+70	
28+87.40	325.23		44+70 TO 44+95	
33+87.39	324.51		PASSING BAY SEE 3 1.3	26+25 TO 26+84
28+87.39	323.86			
43+87.43	323.33			
48+87.43	322.66			
53+87.42	322.06			
58+87.42	321.44			
59+47.40	321.39			

- NOTES:**
- STATION NUMBERS ARE APPROXIMATE AND FOR REFERENCE ONLY.
  - GEOLOGIC CONDITIONS ARE SHOWN ON SHEET 1.1.
  - SEE SHEET 1.0A FOR DEVIATIONS FROM TYPE 1 LINER.

08/02/2019

REV#	DATE	BY	DESCRIPTION
6	08/02/2019	RLS	RECORD DRAWING
3	3/27/2017	RLS	FOR CONSTRUCTION
2	11/1/16	RLS	ISSUED FOR BID
1	01/15/14	RLS	100% DESIGN
0	04/08/13	RLS	90% DESIGN

**OAKDALE IRRIGATION DISTRICT**

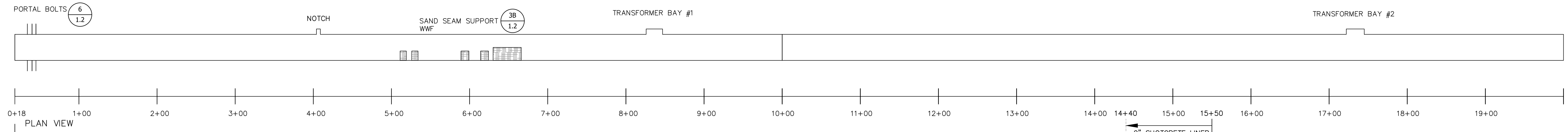
**SOUTH MAIN CANAL  
TWO-MILE BAR TUNNEL**

**TUNNEL PLAN AND PROFILE**

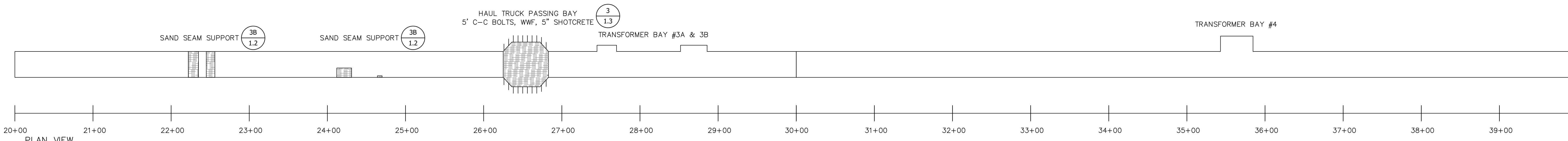
	<b>CONDOR EARTH</b> 21663 Brian Lane P.O. Box 3905 Sonoma, CA 95970 (707) 532-0361 fax(707) 532-0773 www.condorearth.com	<b>SHEET</b>  <b>1.0</b>
	JOB#: 3818G4 PRINTED:	DRAWN: K. MCKINLEY CHECKED: S. LEWIS

DISCLAIMER: THIS PLAN REPRESENTS FEATURES FOR ILLUSTRATION PURPOSES ONLY. IT IS NOT A LEGAL SURVEY AND IS NOT INTENDED FOR USE IN DETERMINING BOUNDARIES. ANY USE OF THIS PLAN FOR PURPOSES OTHER THAN LOCATION OF FEATURES IS DONE SO AT THE USER'S RISK AND WITHOUT THE CONSENT OF CONDOR EARTH.

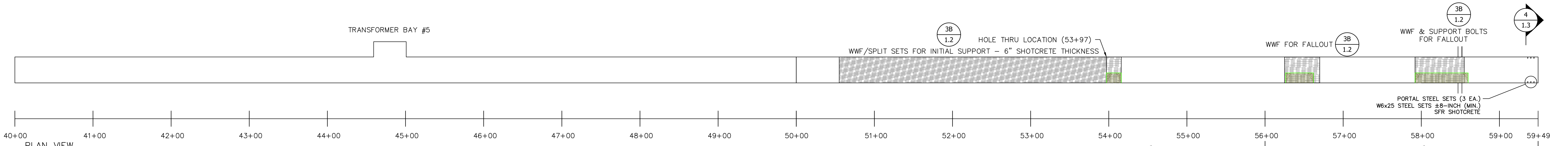
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PLAN VIEW  
6" CONCRETE TUNNEL INVERT PER 2/1.2



PLAN VIEW



PLAN VIEW  
6" CONCRETE TUNNEL INVERT PER 2/1.2



08/02/2019

REV#	DATE	BY	DESCRIPTION
6	08/02/2019	RLS	RECORD DRAWING (NEW SHEET)

**OAKDALE IRRIGATION DISTRICT**

SOUTH MAIN CANAL  
TWO-MILE BAR TUNNEL

**TUNNEL SUPPORT  
AS-CONSTRUCTED**

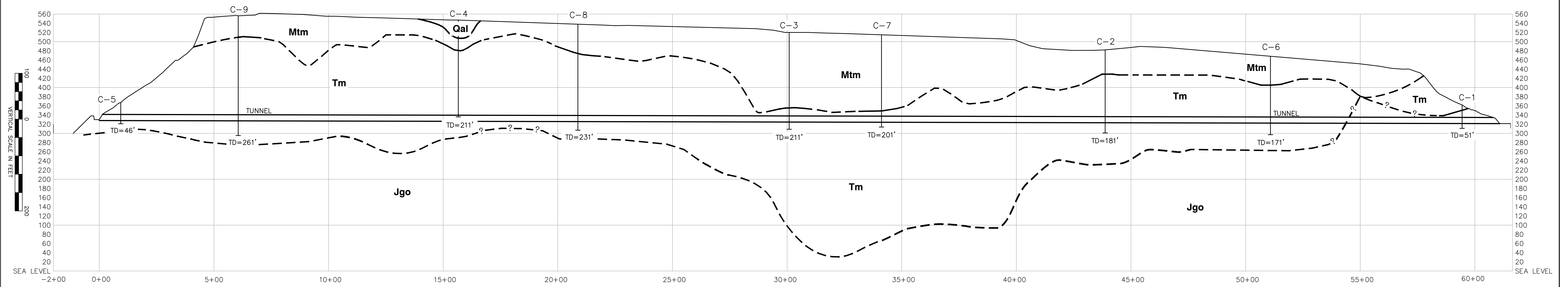
**CONDOR EARTH**  
21663 Brian Lane  
P.O. Box 3905  
Sonoma, CA 95070  
(709) 532-0361  
fax (709) 532-0773  
www.condorearth.com

**SHEET  
1.0A**

JOB# 3818G4	DRAWN: K. MCKINLEY	SCALE: AS SHOWN
PRINTED:	CHECKED: S. LEWIS	FILE: 3818G4_1.0

X:\Project\3000\_pj\3818G4\_ODD 2-Mile Bar\3818G3 TMB Design and Construction\3818G3\_CADD\G\RECORD DRAWINGS\3818G4\_1.0.dwg 8-02-19 02:41:52 PM amckinley

- NOTES:**
- TUNNEL GEOLOGIC PROFILE PROVIDED FOR CONVENIENCE OF CONTRACTOR. REFER TO GEOTECHNICAL BASELINE REPORT (GBR) PREPARED BY CONDOR.
  - ALL CORE HOLE LOCATIONS CLOSED WITH CEMENT GROUT PER TUOLUMNE/STANISLAUS COUNTY PERMITS.



**A TUNNEL GEOLOGIC PROFILE**  
SCALE: AS SHOWN



**SCALE**  
HORIZONTAL - 1" = 200'  
VERTICAL - 1" = 100'

**LEGEND**

- TEM (TRANSIENT ELECTROMAGNETIC) APPROXIMATE CONTACT, DASHED;  
Borehole-verified contact, solid
- Qal** ALLUVIUM
- Mtm** TABLE MOUNTAIN LATITE - PROMINENT FLOWS OF DARK LATITE CHARACTERIZED BY ABUNDANT LABRADORITE PHENOCRYSTS.
- Tm** MEHRTEN FORMATION - ANDESITIC CONGLOMERATE, TUFFACEOUS SANDSTONE, AND MUDFLOW BRECCIA (LAHAR); SOME TUFF AND RHYOLITE
- Jgo** GOPHER RIDGE FORMATION - JURASSIC META VOLCANICS "GREENSTONE"
- C - 9** DRILL HOLE LOCATION AS DESCRIBED IN GBR.
- TD** TERMINATION OF DRILL HOLE.

**NOTE:** GEOLOGIC INTERPRETATION BETWEEN CORE HOLES BASED IN PART ON GEOPHYSICAL TEM DATA.



08/02/2019

REV#	DATE	BY	DESCRIPTION
6	08/02/2019	RLS	RECORD DRAWING
3	3/27/2017	RLS	FOR CONSTRUCTION
2	11/1/16	RLS	ISSUED FOR BID
1	01/15/14	RLS	100% DESIGN
0	04/08/13	RLS	90% DESIGN

**OAKDALE IRRIGATION DISTRICT**  
SOUTH MAIN CANAL  
TWO-MILE BAR TUNNEL  
**TUNNEL GEOLOGIC PROFILE**

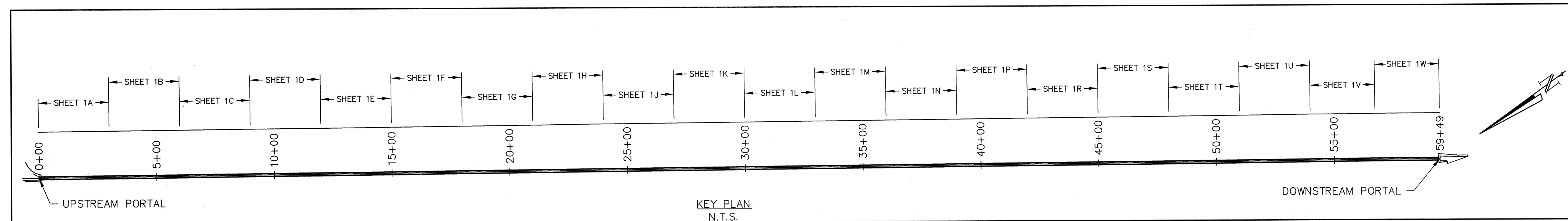
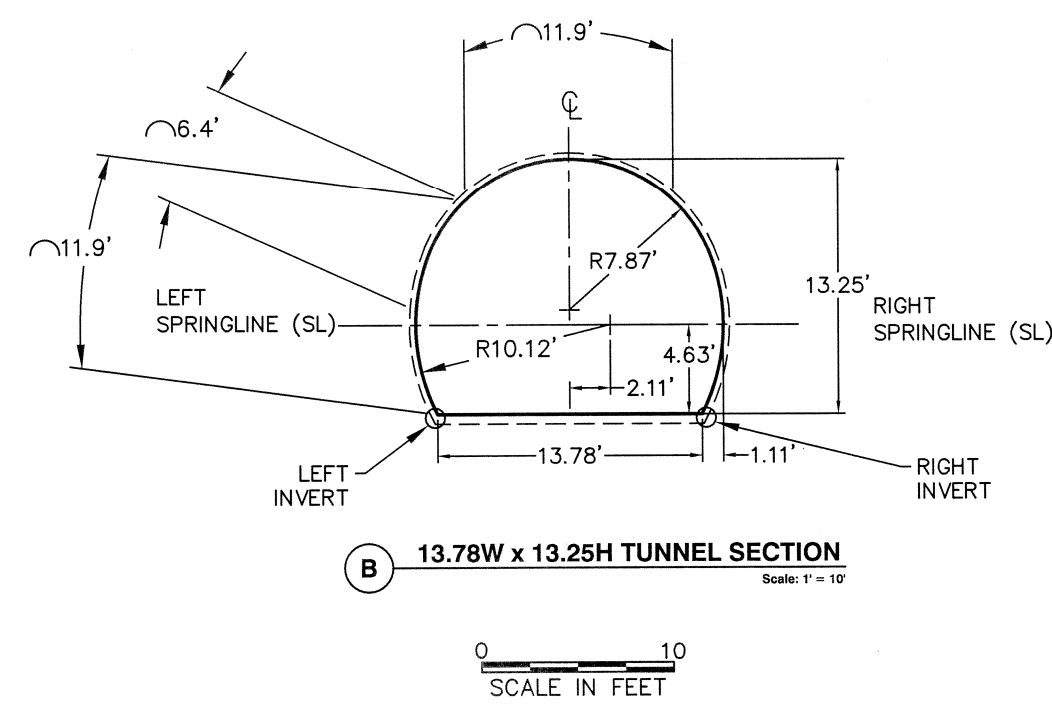
	<b>CONDOR EARTH</b> <small>21663 Brian Lane P.O. Box 3905 Sonoma, CA 95070 (209) 532-0361 fax(209) 532-0773 www.condorearth.com</small>	<b>SHEET</b>  <h1>1.1</h1>
	<small>JOB#:</small> 3818G4 <small>DRAWN:</small> K. MCKINLEY <small>SCALE:</small> AS SHOWN <small>PRINTED:</small> <small>CHECKED:</small> S. LEWIS <small>FILE:</small> 3818G4_1.1	

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# TUNNEL LOGS

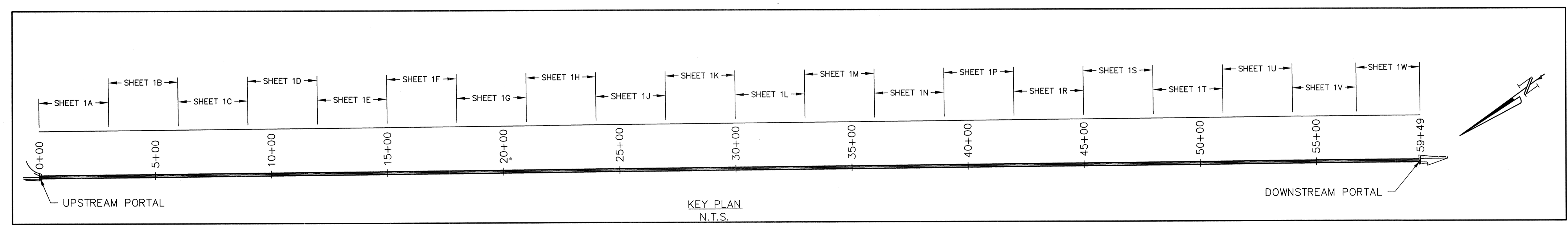
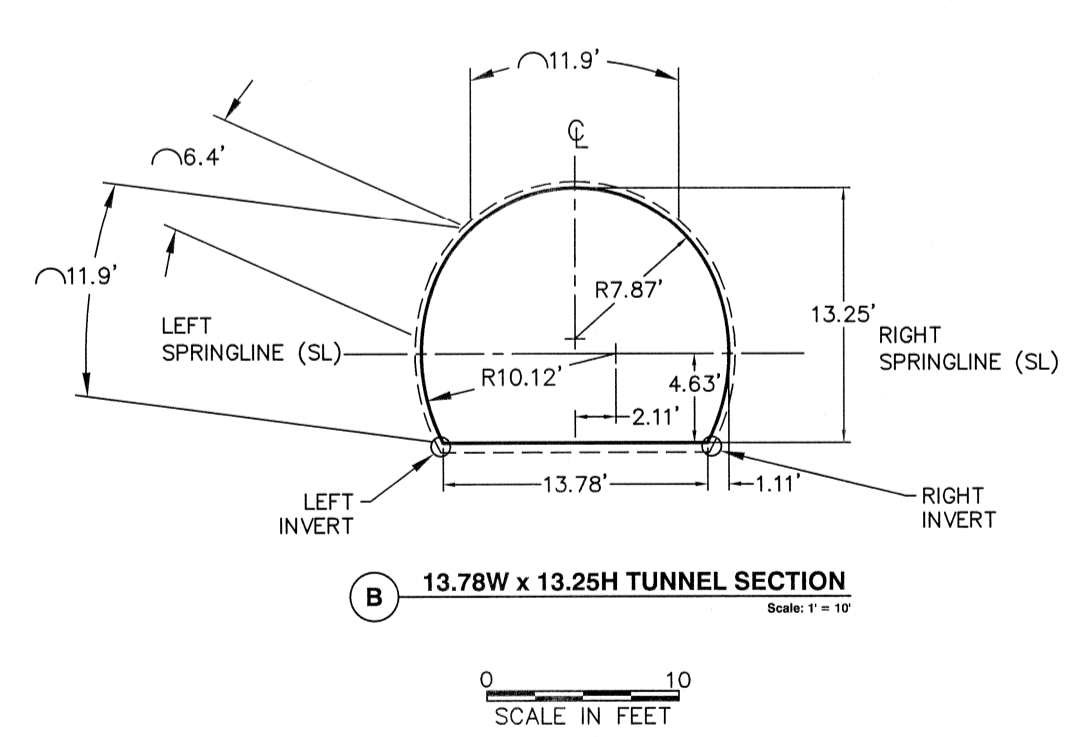
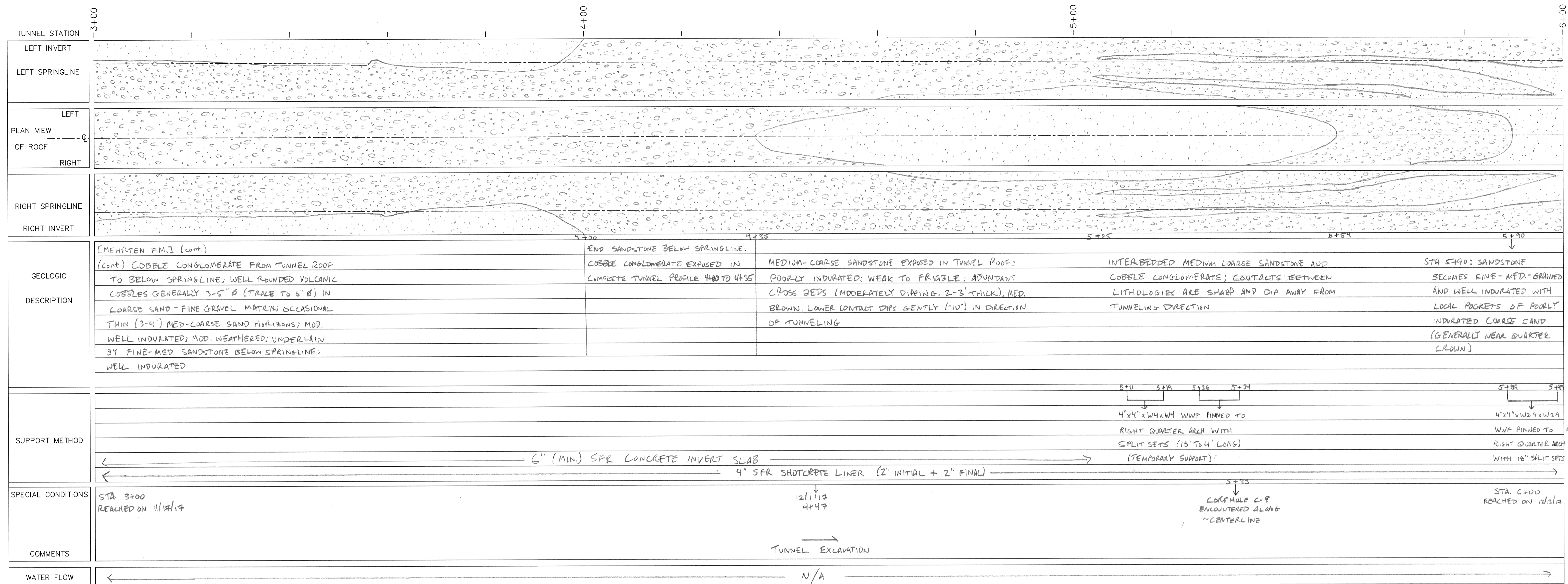


TUNNEL STATION	0+00	1+00	2+00	3+00
LEFT INVERT	[Geological profile showing left invert line]			
LEFT SPRINGLINE	[Geological profile showing left springline line]			
PLAN VIEW OF ROOF	UPSTREAM PORTAL	[Geological profile showing roof plan view]		DOWNSTREAM PORTAL
RIGHT SPRINGLINE	[Geological profile showing right springline line]			
RIGHT INVERT	[Geological profile showing right invert line]			
GEOLOGIC DESCRIPTION	[MEHRTEN FM.] UNLESS OTHERWISE NOTED	STA 01+03 TO 01+72	1+72	2+14
	FINE SANDSTONE WITH SILT; MEDIUM BROWN; OCCASIONAL THIN MUDSTONE HORIZONS (<3"); BEDDING IS SUBHORIZONTAL WITH LOCAL GENTLY DIPPING CROSS BEDS UP TO 3' THICK; WELL INDURATED; SLIGHTLY WEATHERED; DAMP	COARSE SANDSTONE ABOVE SPRINGLINE; DARK BROWN; INVERSELY GRADES TO LOBBLE CONGLOMERATE IN TUNNEL ROOF; WELL ROUNDED VOLCANIC LOBBLES TO 10' Ø (GENERALLY 3-5" Ø); MOD. WELL INDURATED	INTERBEDDED FINE- TO MEDIUM-GRAINED SANDSTONE AND COARSE SANDSTONE W/ TRACE ANGULAR VOLCANIC COBBLES TO 4" Ø; MOD. WELL TO WELL BEDDING; MEDIUM THICKNESS (12"-24")	COBBLE CONGLOMERATE EXPOSED IN TUNNEL ROOF; LOWER CONTACT DIP MODERATELY (20-25°) IN DIRECTION OF TUNNELING; WELL ROUNDED VOLCANIC COBBLES GENERALLY 3-5" Ø (TRACE COBBLES TO 10-12" Ø); COARSE SAND-FINE GRAVEL MATRIX; MOD. WELL INDURATED; MOD WEATHERED W/SOME OXIDATION; LOWER CONTACT TRUNCATES UNDERLYING SAND BEDS; OCCASIONAL LENSES OF FINE-MEDIUM SANDSTONE WITHIN CONGLOMERATE
SUPPORT METHOD	3' EPOXY ROCK BOLTS AS SHOWN (□)	6" (MIN.) SFR CONCRETE INVERT SLAB		
		4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)		
SPECIAL CONDITIONS	STA 00+16 TO 00+18 EXCAVATED WITH HYUNDAI 720 EXCAVATOR WITH MILLING HEAD ATTACHMENT FROM 9/20/2017 TO 9/15/2017	START EXCAVATION WITH AM 75 ROADHEADER ON 10/11/2017	11/1/17 1+36	STA 3+00 REACHED ON 11/17/17
COMMENTS		STA 01+55 TO 01+95 FOLDS FROM DE-COMPOSED ORGANIC DEBRIS: 1" TO 6" Ø	TUNNEL EXCAVATION	
WATER FLOW	N/A			



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
<b>TWO-MILE BAR TUNNEL</b>			
TUNNEL GEOLOGIC LOG STA: 0+00 TO STA: 3+00			
<b>CONDOR EARTH</b>			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1A</b>
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
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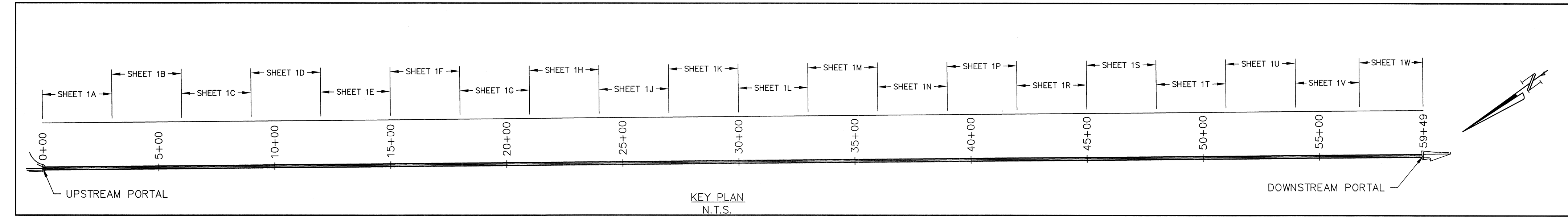
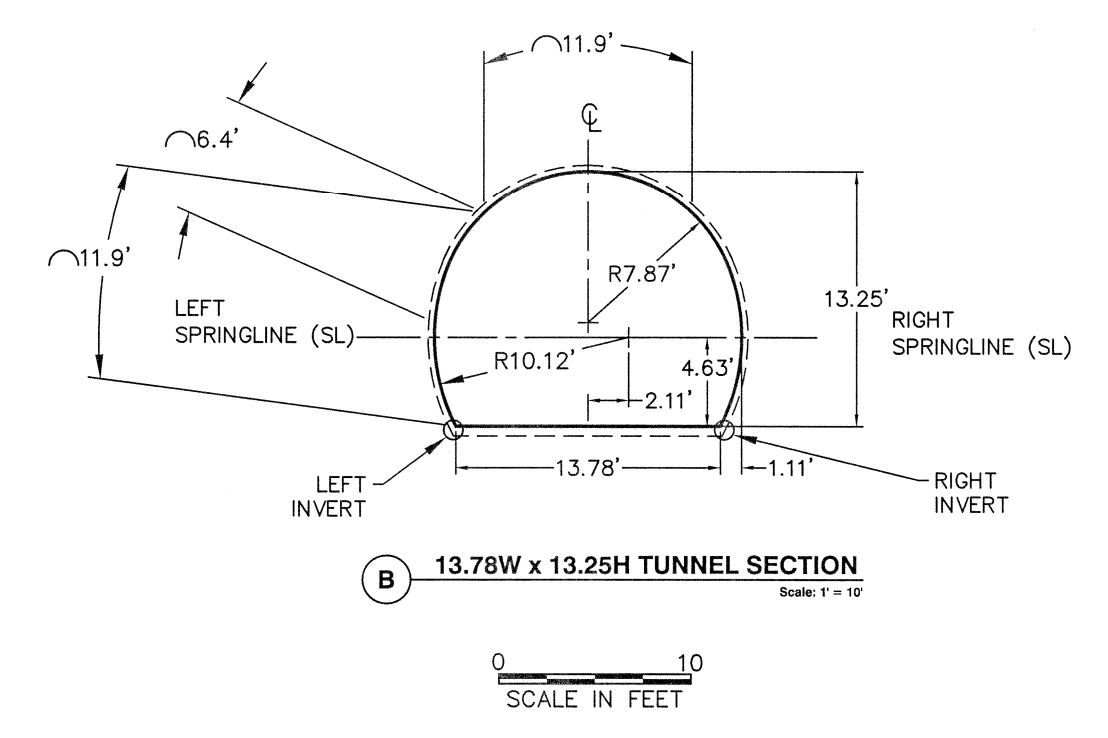
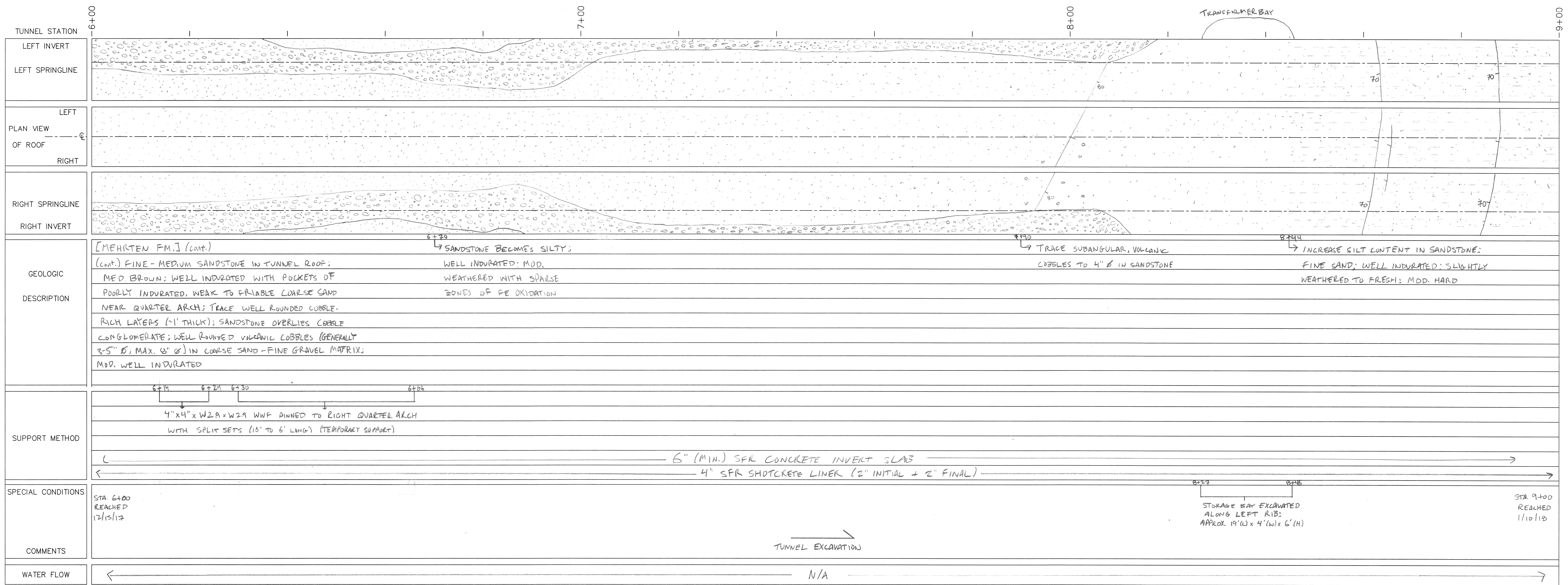
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REV#	0	DATE	June 2019	BY	KVM	DESCRIPTION	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>							
TWO-MILE BAR TUNNEL							
TUNNEL GEOLOGIC LOG							
STA: 3+00 TO STA: 6+00							
<b>CONDOR EARTH</b>						<b>SHEET 1B</b>	
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com							
JOB#	381864	DRAWN:	KW	CHECKED:	SWL	SCALE:	AS SHOWN
						FILE:	381864-11

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REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction

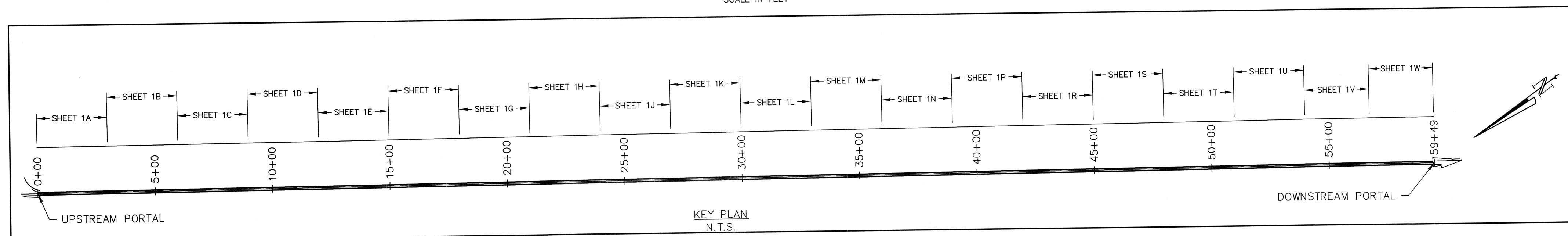
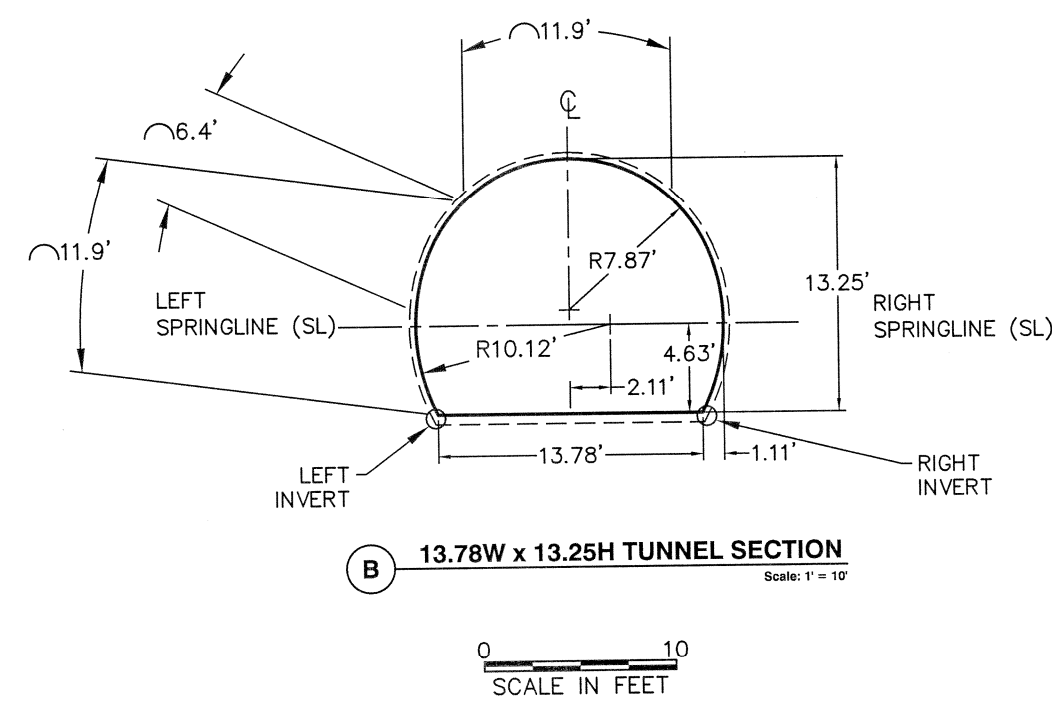
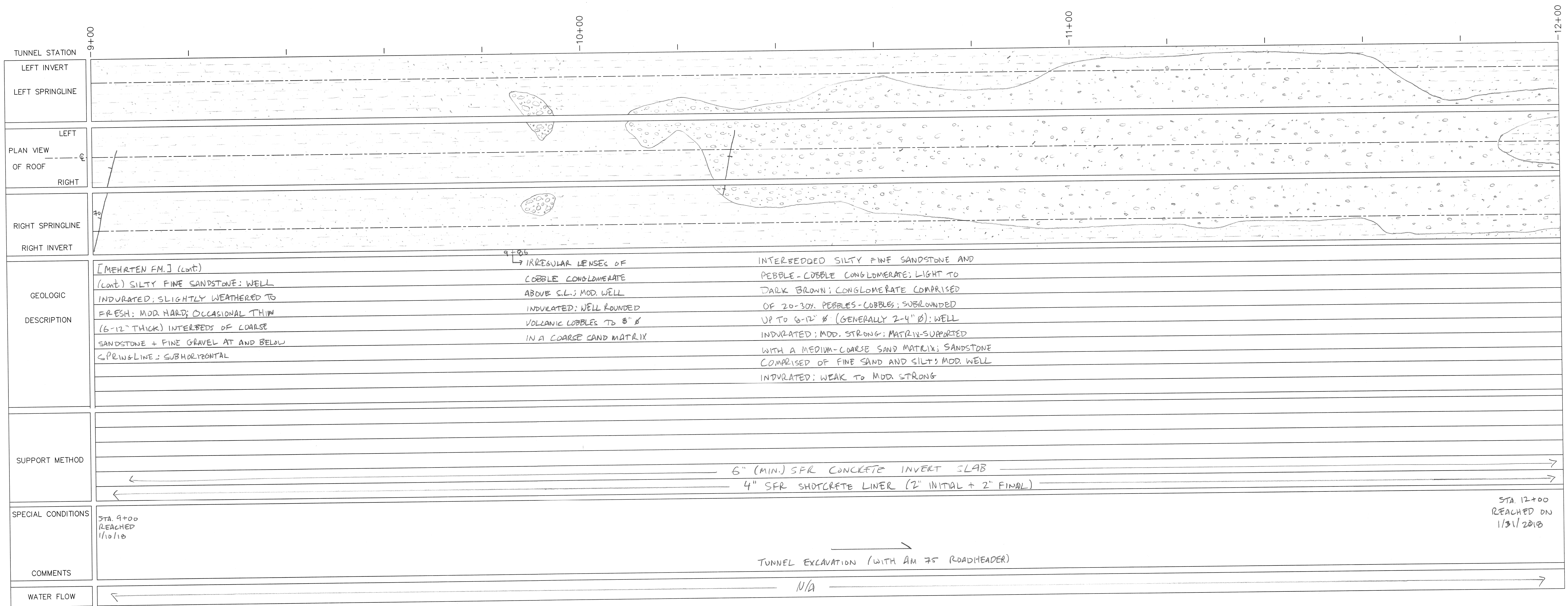
**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

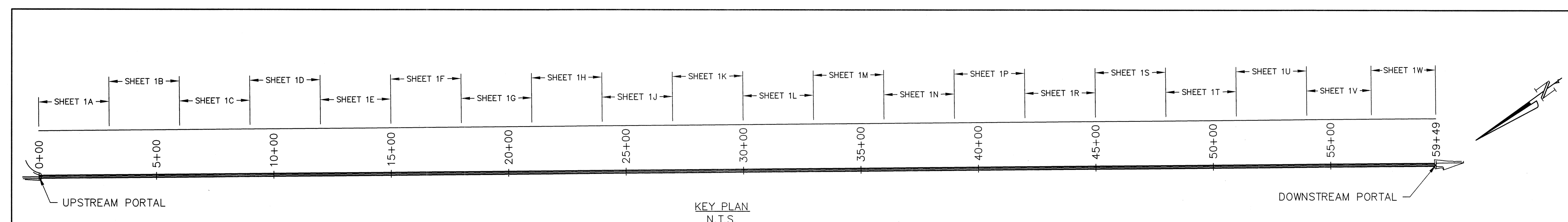
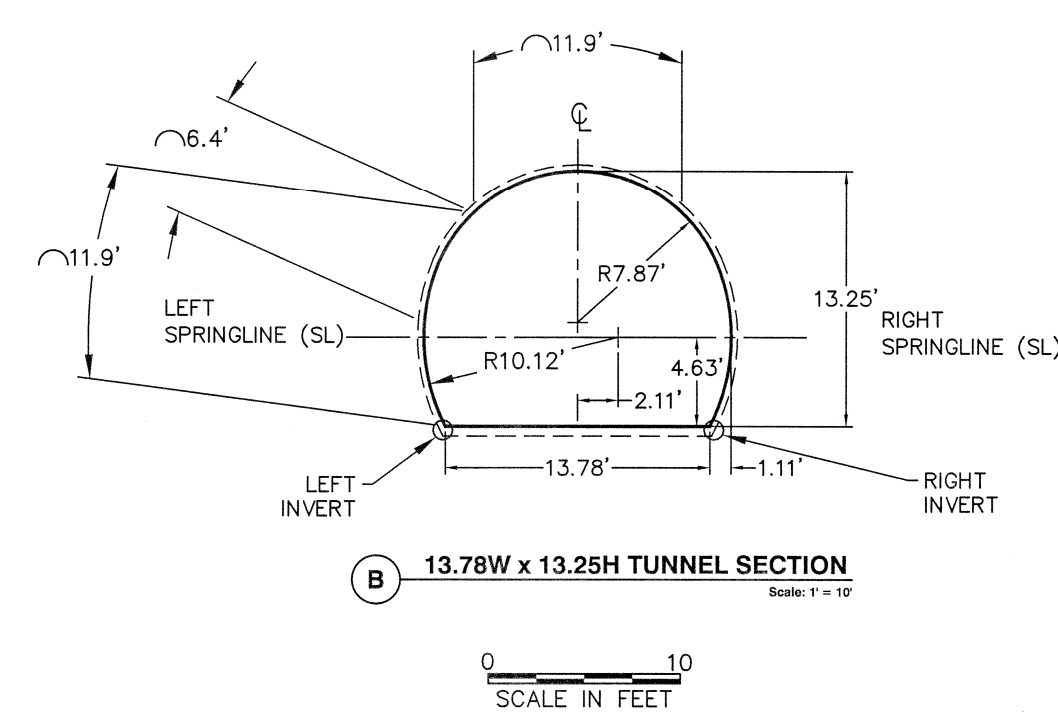
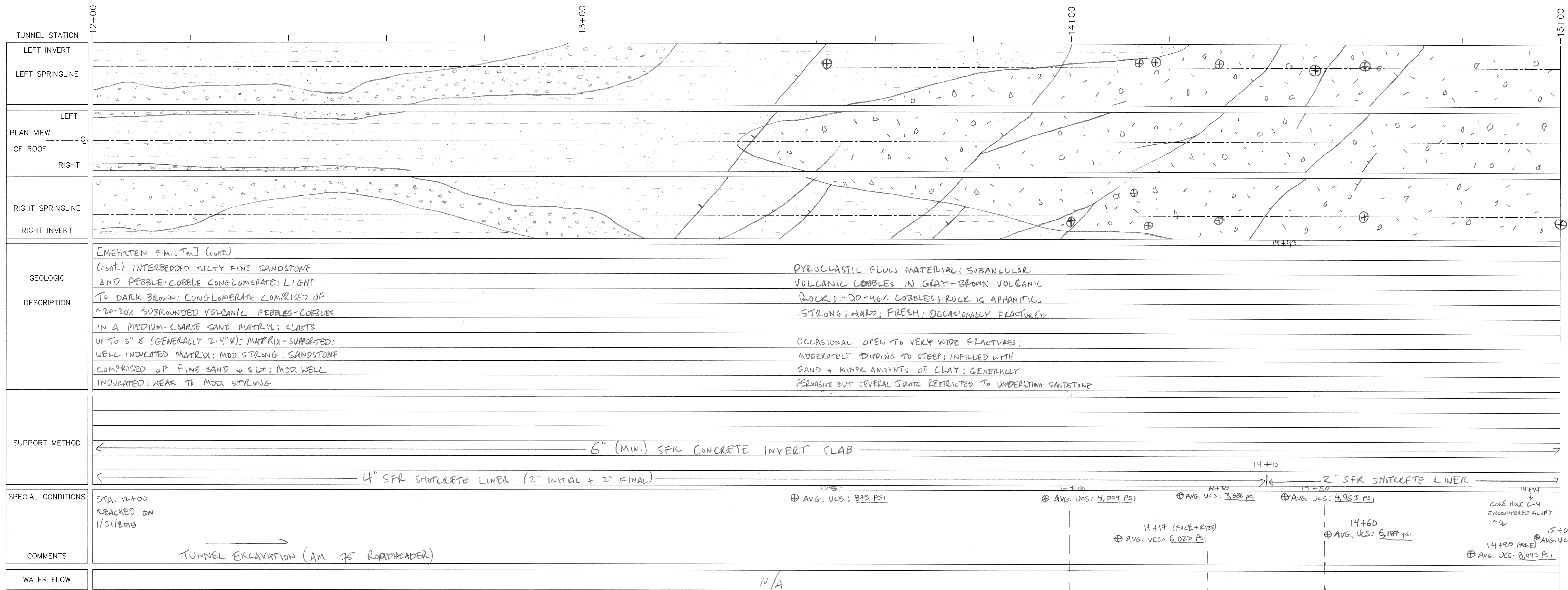
**TUNNEL GEOLOGIC LOG**  
STA: 6+00 TO STA: 9+00

	<b>CONDOR EARTH</b> 21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com	<b>SHEET</b>  <b>1C</b>
	JOB# 3818G4 DRAWN: KW CHECKED: SWL	SCALE: AS SHOWN FILE: 3818G4_F1

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REV#	DATE	BY	DESCRIPTION
0	June 2019	KVM	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
<b>TWO-MILE BAR TUNNEL</b>			
TUNNEL GEOLOGIC LOG STA: 9+00 TO STA: 12+00			
<b>CONDOR EARTH</b>			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1D</b>
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
CHECKED: SWL			FILE: 3818G4_F1



DIFFERING SITE CONDITIONS (ROCK UCS EXCEEDS Tm BASELINE MAX. OF 5,000 PSI IN GBR); ZONE #2 (RF1 027)

DIFFERING SITE CONDITIONS (ROCK UCS EXCEEDS Tm BASELINE MAX. OF 5,000 PSI IN GBR); ZONE #1 (RF1 027)

(⊕) ROCK CORE SAMPLES AS SHOWN

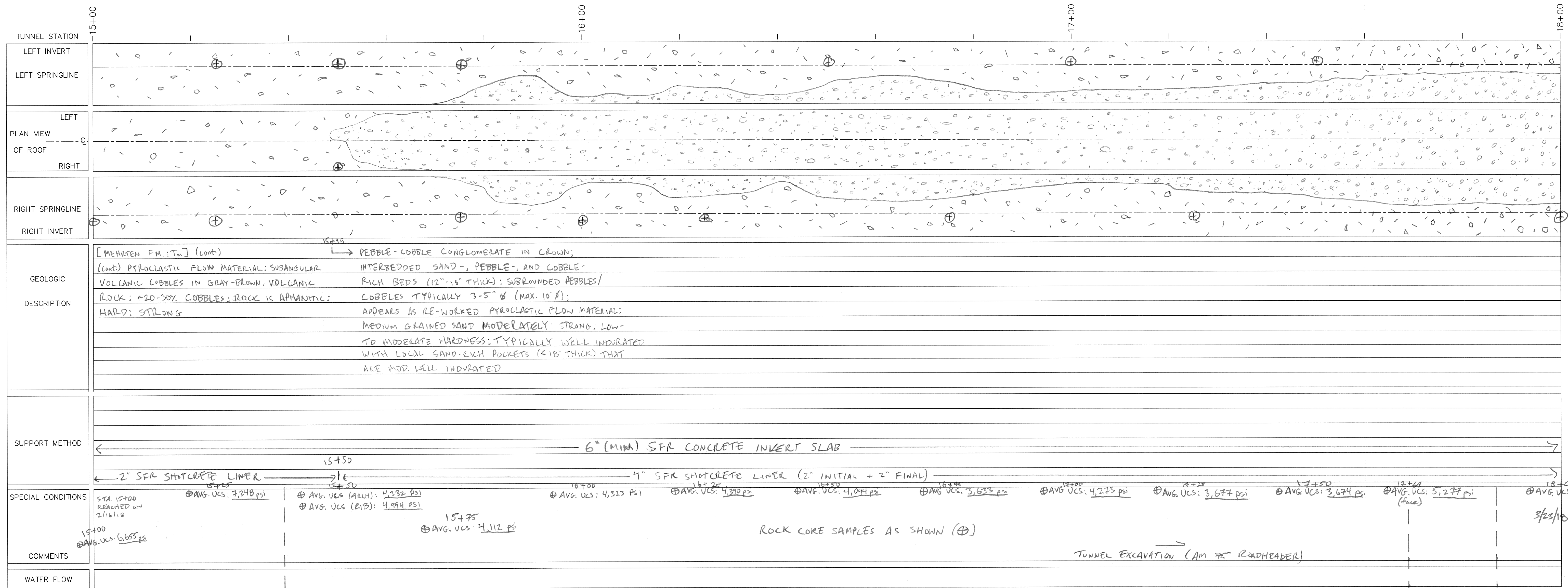
REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction

**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

**TUNNEL GEOLOGIC LOG**  
STA: 12+00 TO STA: 15+00

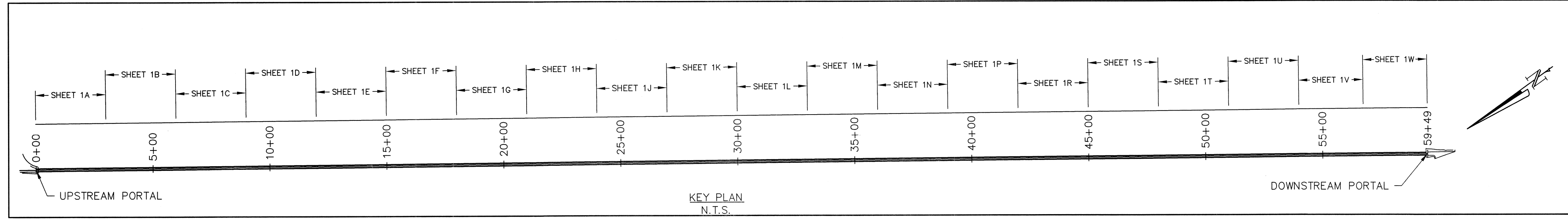
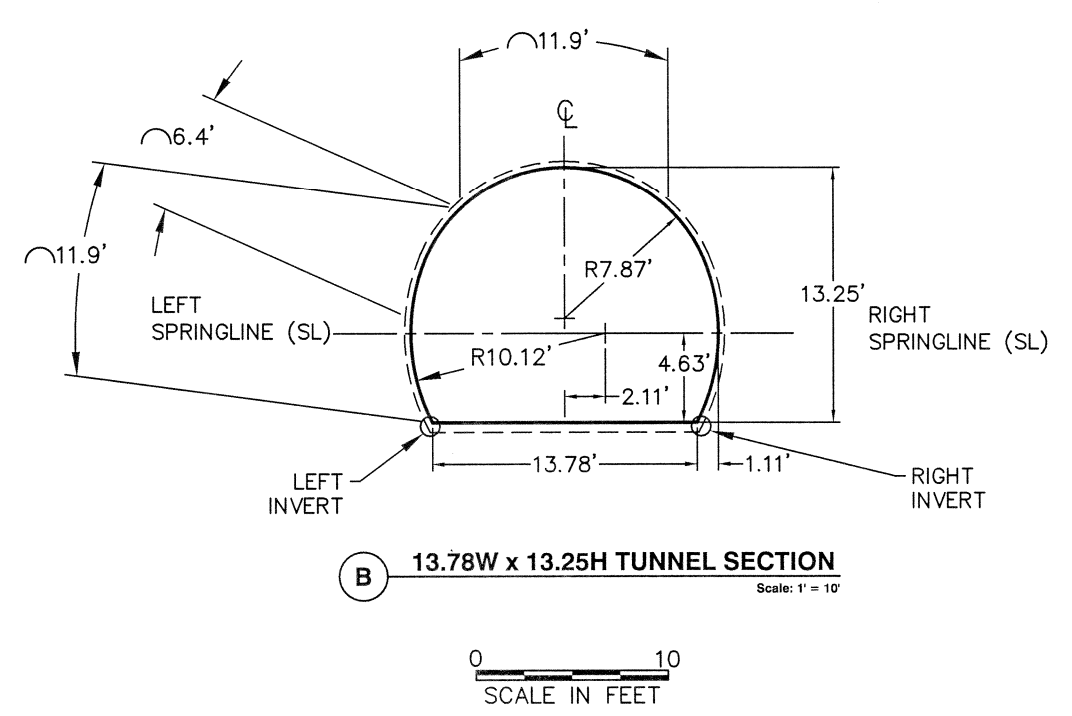
<b>CONDOR EARTH</b>	21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com	<b>SHEET</b> <b>1E</b>
JOB#: 3818G4	DRAWN: KW	SCALE: AS SHOWN
CHECKED: SWL	FILE:	3818G4.F1



**SPECIAL CONDITIONS**  
 STA. 15+00 REGRADED AND 216118  
 15+00 @AVG. UCS: 6,655 psi

**COMMENTS**  
 DIFFERING SITE CONDITIONS (ROCK UCS EXCEEDS T<sub>m</sub> BASELINE MAX. OF 5,000 psi IN GBR); ZONE #2 (RFI 027)

**WATER FLOW**



DIFFERING SITE CONDITIONS (ROCK UCS EXCEEDS T<sub>m</sub> BASELINE MAX. OF 5,000 psi IN GBR); ZONE #3 (RFI 027)

REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction

**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

**TUNNEL GEOLOGIC LOG**  
 STA: 15+00 TO STA: 18+00

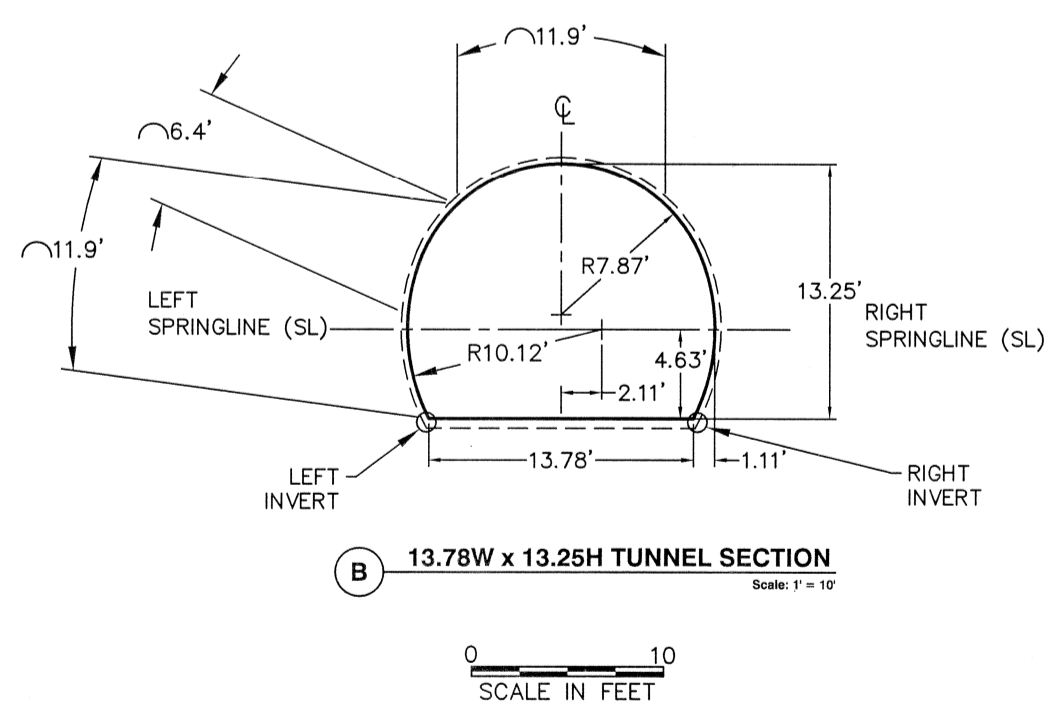
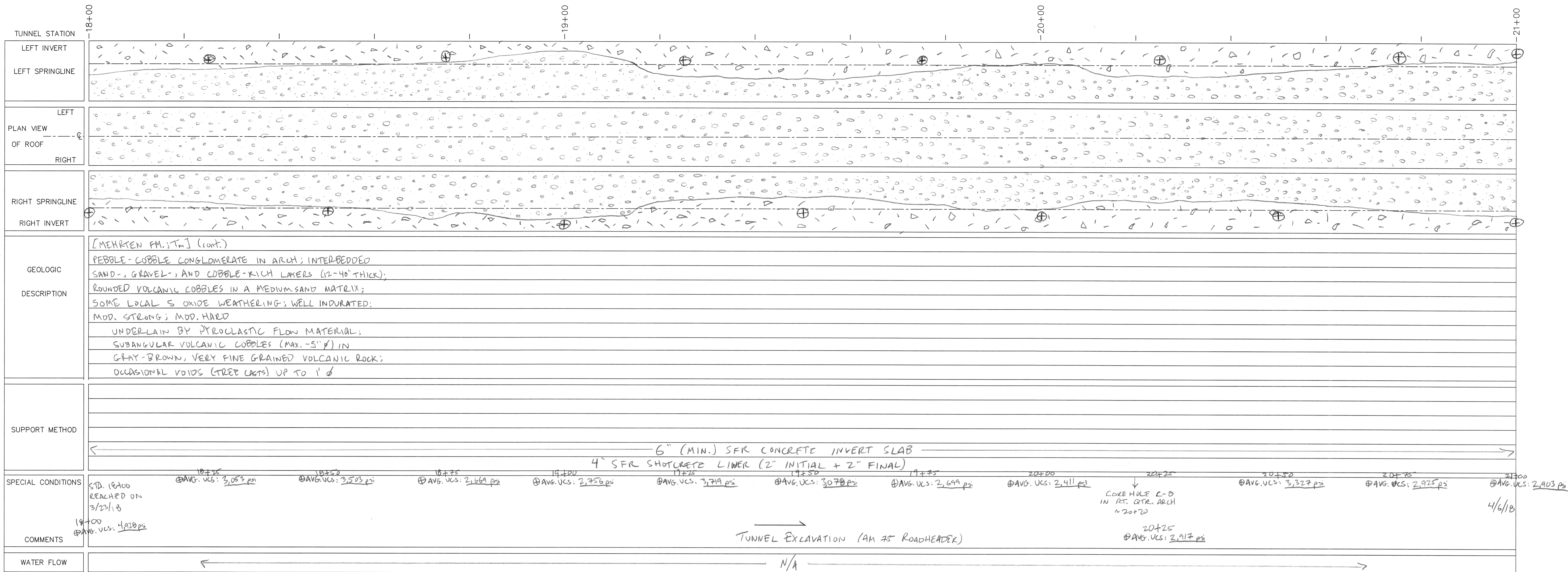
**CONDOR EARTH**  
 21863 Brian Lane  
 P.O. Box 3905  
 Sonoma, CA 95370  
 (209) 532-0361  
 fax(209) 532-0773  
 www.condorearth.com

**CONDOR**

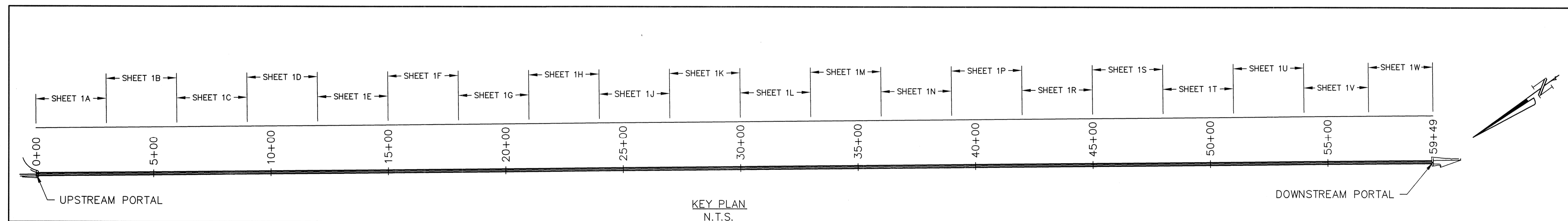
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JOB#: 3818G4    DRAWN: KW    SCALE: AS SHOWN  
 CHECKED: SWL    FILE: 3818G4\_1F

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(⊕) ROCK CORE SAMPLES, AS SHOWN



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction

**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

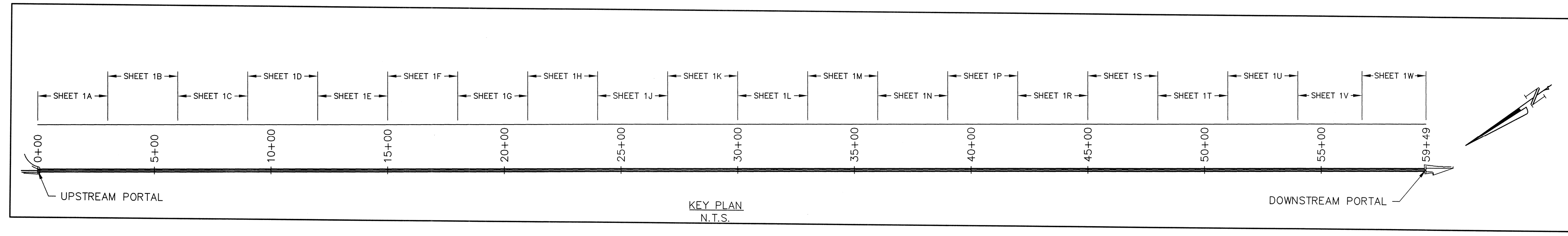
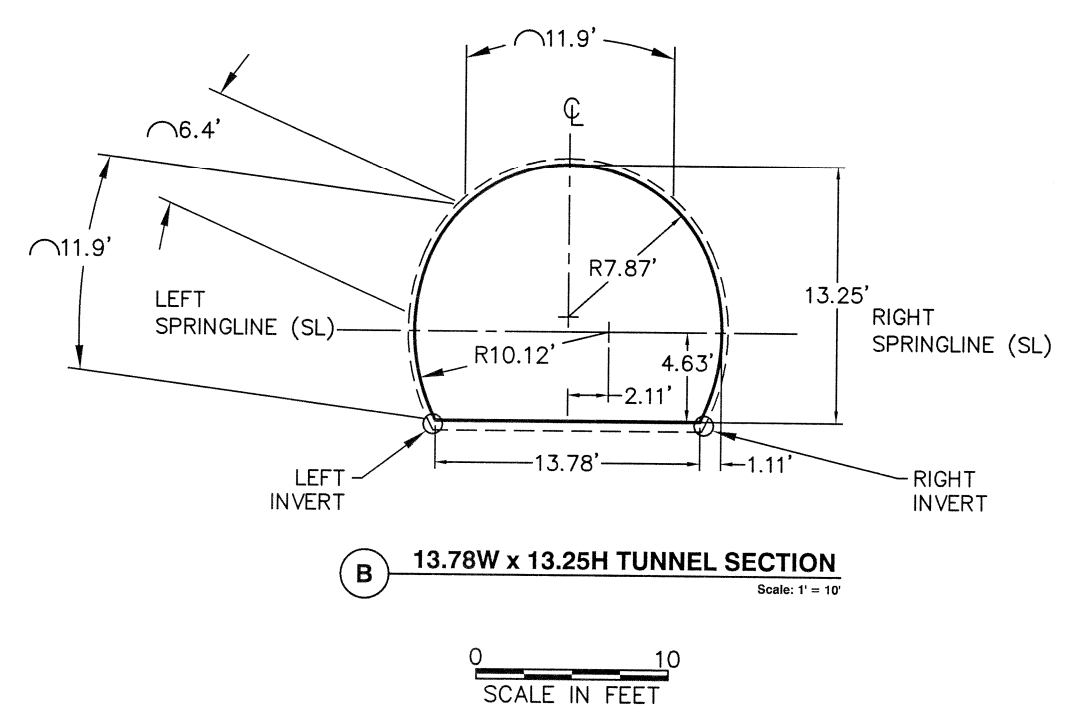
**TUNNEL GEOLOGIC LOG**  
 STA: 18+00 TO STA: 21+00

**CONDOR EARTH**  
 21663 Brian Lane  
 P.O. Box 3905  
 Sonoma, CA 95370  
 (209) 532-0361  
 fax(209) 532-0773  
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**SHEET 1G**

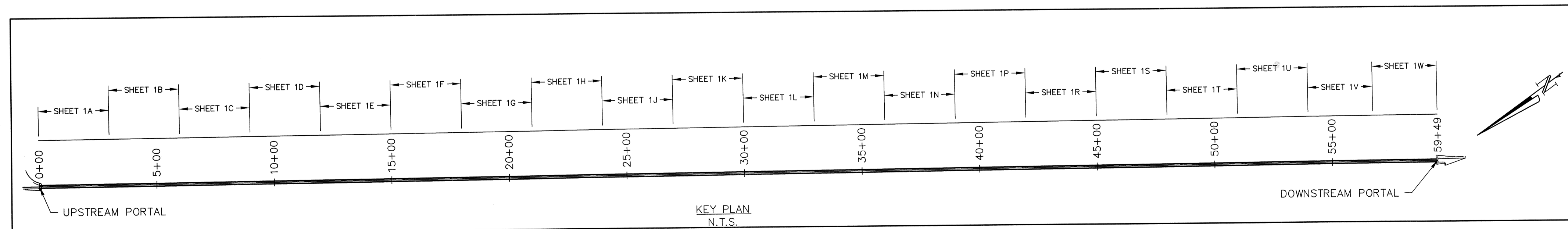
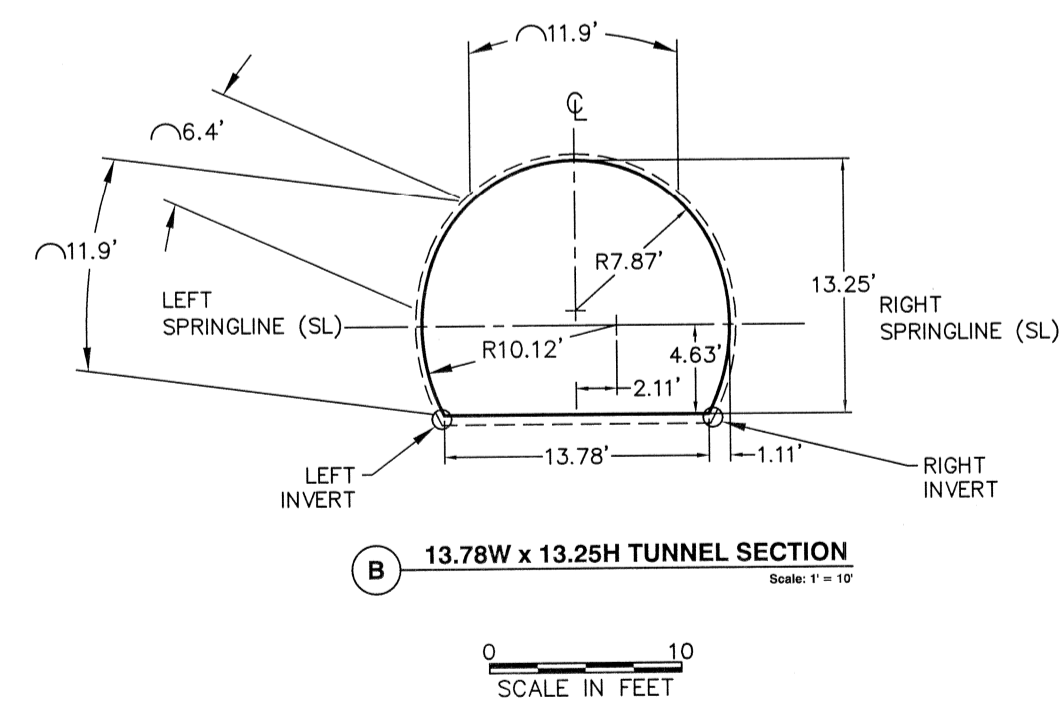
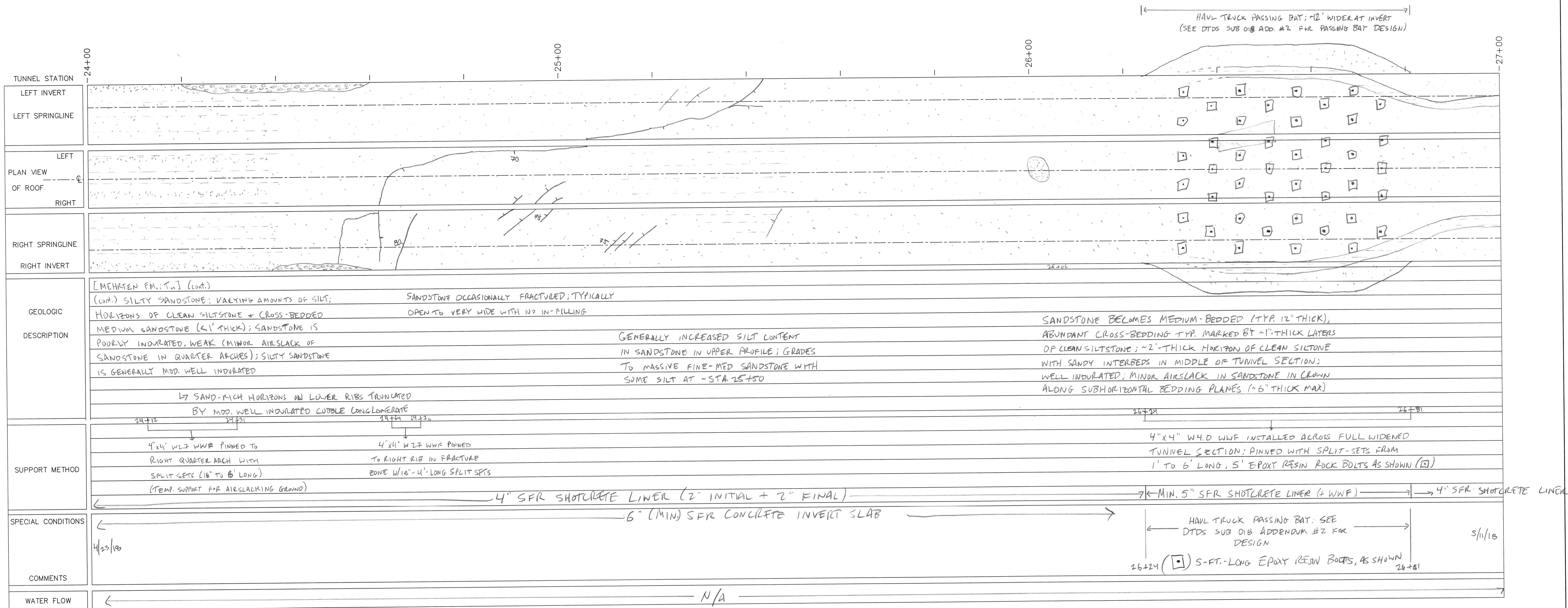
JOB#: 3818G4 DRAWN: KW SCALE: AS SHOWN  
 CHECKED: SWL FILE: 3818G4\_1

TUNNEL STATION	21+00	22+00	23+00	24+00
LEFT INVERT	[Geological profile showing left invert line]			
LEFT SPRINGLINE	[Geological profile showing left springline line]			
LEFT PLAN VIEW OF ROOF	[Geological profile showing left plan view of roof]			
RIGHT SPRINGLINE	[Geological profile showing right springline line]			
RIGHT INVERT	[Geological profile showing right invert line]			
GEOLOGIC DESCRIPTION	<p>[MEMENTO FM; Tm] (cont.)</p> <p>(cont.) COBBLE CONGLOMERATE IN ARCH; INTERBEDDED SAND-GRAVEL, + COBBLE-RICH LAYERS; MEDIUM BEDDED (TYP. ~24" THICK); CLAST SUPPORTED; ROUNDED VOLCANIC COBBLES/GRAVEL TO 12" Ø (TYP. 3-5" Ø); WELL INDURATED; OCCASIONAL IRREGULAR FRACTURES WITH NO INFILLING</p> <p>UNDERLAIN BY PYROCLASTIC FLOW MATERIAL; SUBANGULAR VOLCANIC COBBLES (3-5" Ø) IN GLAU-BLOWN VOLCANIC ROCK; HARD; STRONG</p> <p>→ ~1-2' THICK LENS OF PYROCLASTIC FLOW MATERIAL; TEXTURALLY SIMILAR TO UNDERLYING PYROCLASTIC FLOW BODY</p> <p>→ SILTY SANDSTONE IN ARCH; MED. BROWN; TRUNCATES BEDDING IN UNDERLYING CONGLOMERATE AND PYROCLASTIC FLOW; TRACED ROUNDED VOLCANIC COBBLES (3-5" Ø); GENERALLY MOD. WELL INDURATED WITH LOCAL ZONES OF POOR INDURATION + MINOR RAVELING</p> <p>SANDSTONE GRADUATES TO COBBLE CONGLOMERATE (~40%); MODERATELY STRONG; MODERATELY HARD; MOD. WELL INDURATED (COARSENING-UPWARDS SEQUENCE)</p> <p>→ CONGLOMERATE TRUNCATED BY SILTY SANDSTONE; MED. BROWN; MOD. WELL INDURATED; FINE SAND</p> <p>TREE CAST; ~5" WIDE x ~14" DEEP</p> <p>GRAVEL-RICH LENS; CLASTS ~1-3" Ø</p>			
SUPPORT METHOD	<p>21+12    22+35    22+45    22+52</p> <p>4"x4" W27 WNF PINNED TO RIGHT QUARTER ARCH + CROWN WITH SPLIT-SETS (18"-6' LONG) (TEMP. SUPPORT FROM AIRLACKING GROUND)</p> <p>4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)</p> <p>6" (MIN.) SFR CONCRETE INVERT SLAB</p>			
SPECIAL CONDITIONS	←			
COMMENTS	4/6/18			
WATER FLOW	L			
	TUNNEL EXCAVATION (AM 75 ROADLEADER)			
	N/A			
	4/23/18			



REV#	0	DATE	June 2019	BY	KVW	DESCRIPTION	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>							
<b>TWO-MILE BAR TUNNEL</b>							
TUNNEL GEOLOGIC LOG STA: 21+00 TO STA: 24+00							
<b>CONDOR EARTH</b>						<b>SHEET</b>	
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com						<b>1H</b>	
JOB#	381864	DRAWN	KW	SCALE	AS SHOWN	CHECKED	SWL
FILE	381864-11						

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REV#	DATE	BY	DESCRIPTION
0	June 2019	KVV	Post-Construction

**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

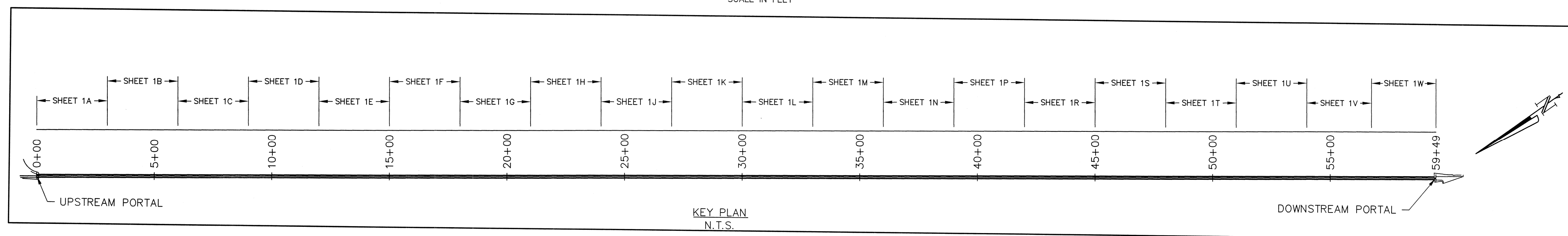
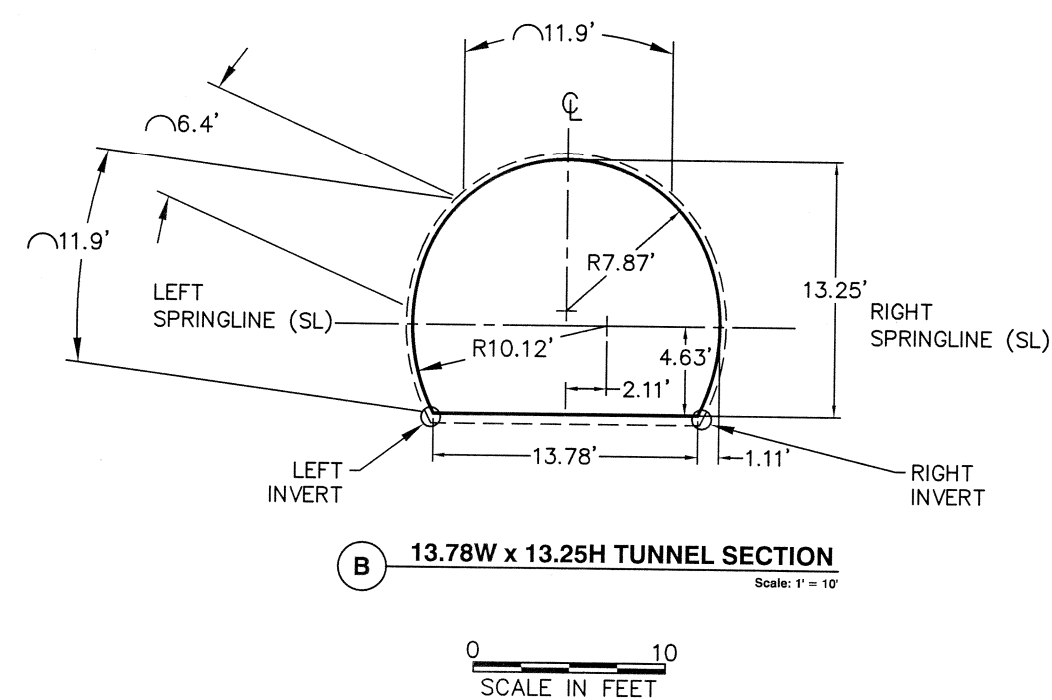
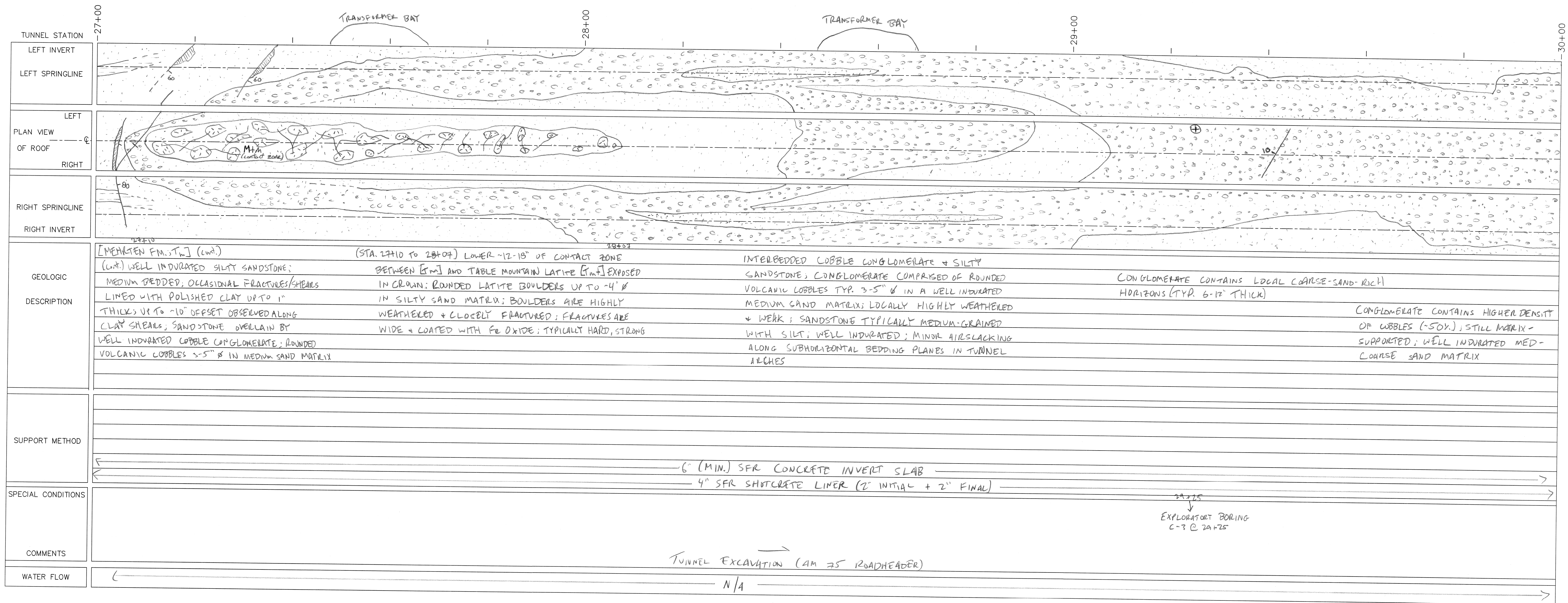
**TUNNEL GEOLOGIC LOG**  
STA: 24+00 TO STA: 27+00

**CONDOR EARTH** SHEET **1J**

21663 Brian Lane  
P.O. Box 3805  
Sonora, CA 95370  
(209) 532-0361  
fax (209) 532-0773  
www.condorearth.com

JOB#: 381864 DRAWN: KW SCALE: AS SHOWN  
CHECKED: SWL FILE: 381864-1

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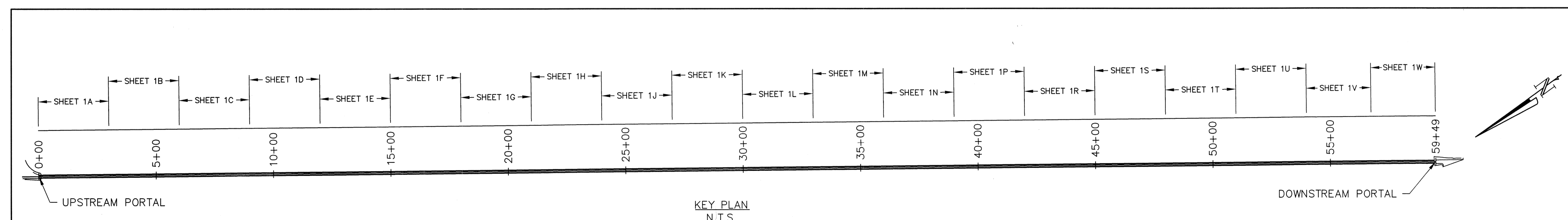
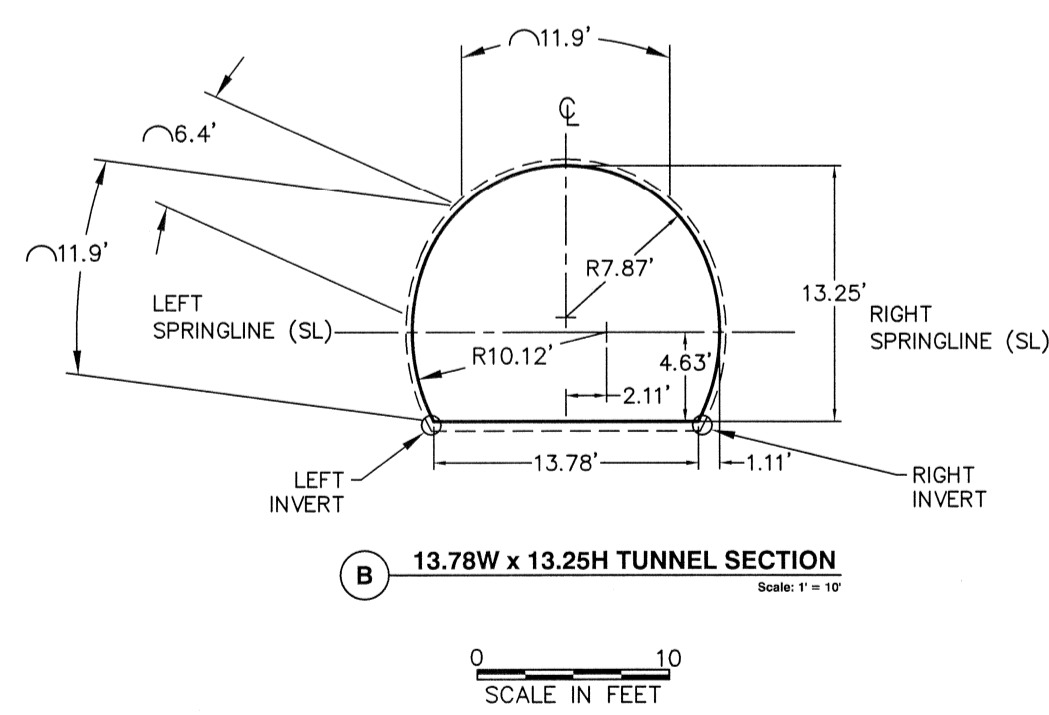


REV#	0	DATE	June 2019	BY	KVW	DESCRIPTION	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>							
<b>TWO-MILE BAR TUNNEL</b>							
<b>TUNNEL GEOLOGIC LOG</b>							
<b>STA: 27+00 TO STA: 30+00</b>							
<b>CONDOR EARTH</b>				<b>SHEET</b>			
21663 Brian Lane P.O. Box 3906 Sonoma, CA 95370 (709) 532-0361 fax (709) 532-0773 www.condorearth.com				<b>1K</b>			
JOB#	3818G4	DRAWN: KW	CHECKED: SWL	SCALE:	AS SHOWN	FILE:	3818G4_1

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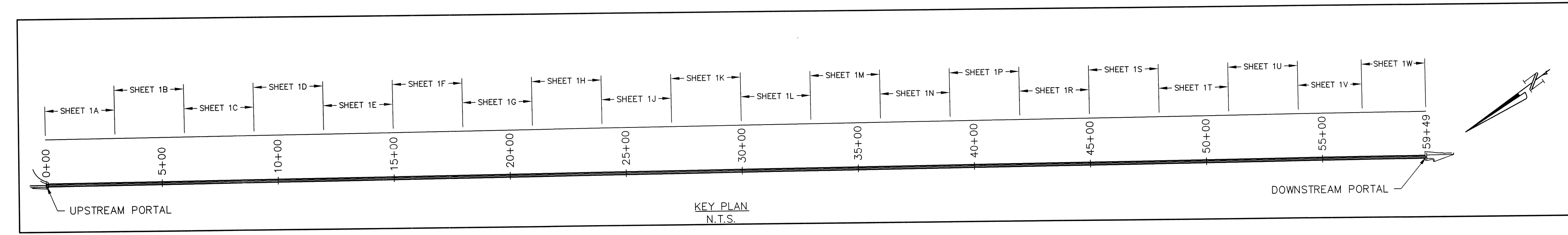
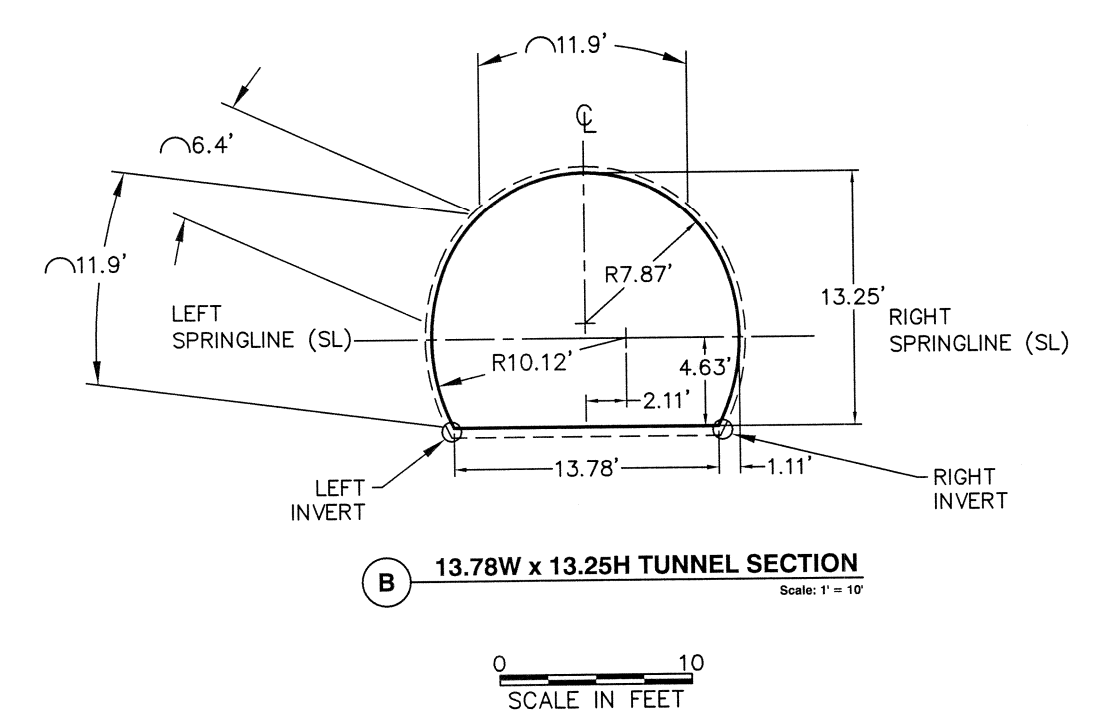
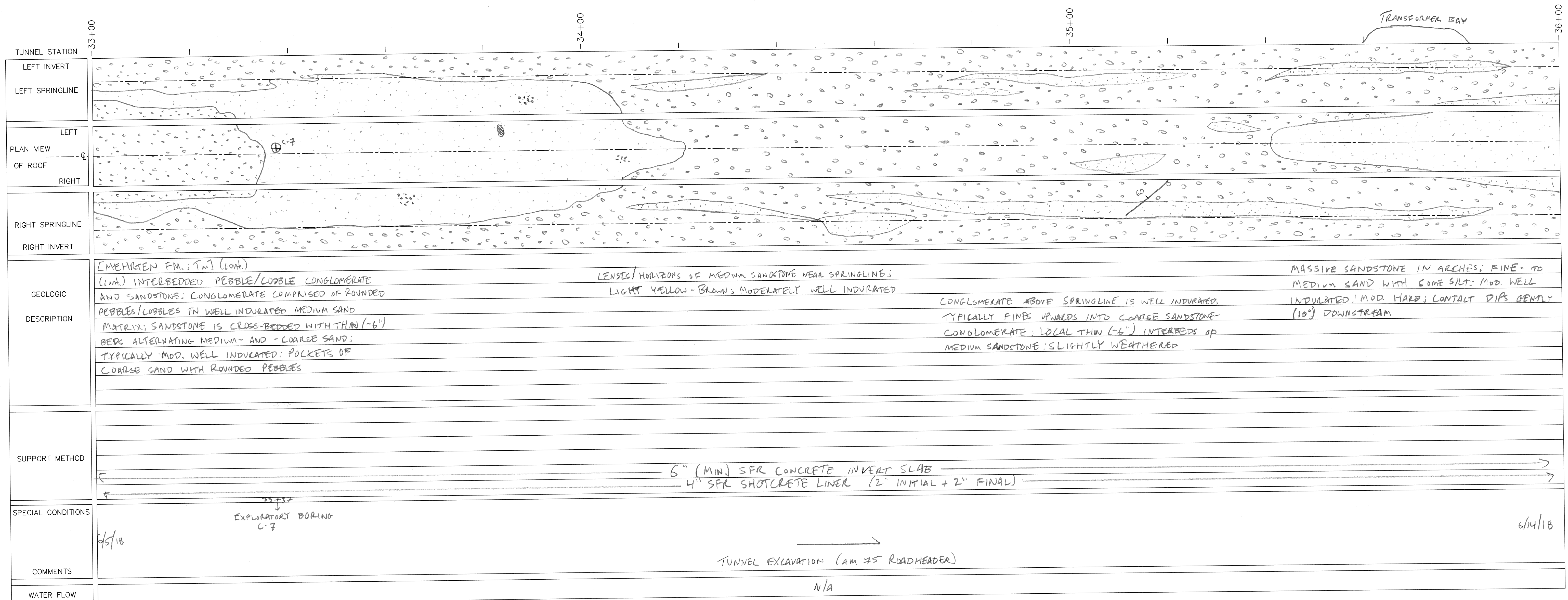


TUNNEL STATION	30+00	31+00	32+00	33+00
LEFT INVERT	[Geologic profile with left invert line]			
LEFT SPRINGLINE	[Geologic profile with left springline line]			
LEFT PLAN VIEW OF ROOF	[Geologic profile with left roof line]			
RIGHT SPRINGLINE	[Geologic profile with right springline line]			
RIGHT INVERT	[Geologic profile with right invert line]			
GEOLOGIC DESCRIPTION	[MERRIEM F.M.; Tm] (cont.) (cont.) INTERBEDDED LOBBLE CONGLOMERATE AND SILTY SANDSTONE; (ROUNDED VOLCANIC COBBLES (TYP. 3-5" Ø) IN WELL INDURATED SAND MATRIX; LOCALLY HIGHLY WEATHERED WITH FeO COATING ON MATRIX	CONGLOMERATE GENERALLY MASSIVE BELOW SPRINGLINE; THIN INTERBEDS OF POORLY INDURATED MEDIUM-COARSE SANDSTONE ABOVE SPRINGLINE	CONGLOMERATE GRADES TO MEDIUM SANDSTONE; CROWN GENERALLY COMPRISED OF MEDIUM SANDSTONE WITH TRACE ROUNDED COBBLES (5X); TYPICALLY MOD. WELL INDURATED WITH POCKETS OF WEAKNESS; AIRSLACKING ALONG SUBHORIZONTAL BEDDING PLANES IN QUARTER ARCHES	SANDSTONE IN CROWN GRADES TO PEBBLE CONGLOMERATE; ROUNDED PEBBLES (~40-50X TYP.) TO 3" Ø IN A WELL INDURATED MEDIUM SAND MATRIX; THIN (<4" THICK) INTERBEDS OF COARSE SANDSTONE IN QUARTER ARCHES; POORLY INDURATED  OCCASIONAL LENSES OF MEDIUM-COARSE SANDSTONE; MOD. WELL INDURATED, GENERALLY SUBHORIZONTAL OR GENTLY E-DIPPING
SUPPORT METHOD	6" (MIN.) SFR CONCRETE INVERT SLAB 4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)			
SPECIAL CONDITIONS	5/23/18			
COMMENTS	TUNNEL EXCAVATION (AM 75 ROADHEADER)			
WATER FLOW	N/A			



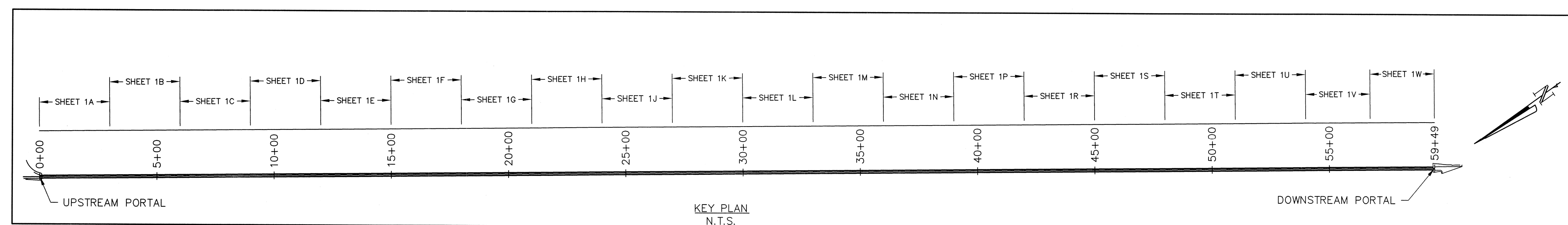
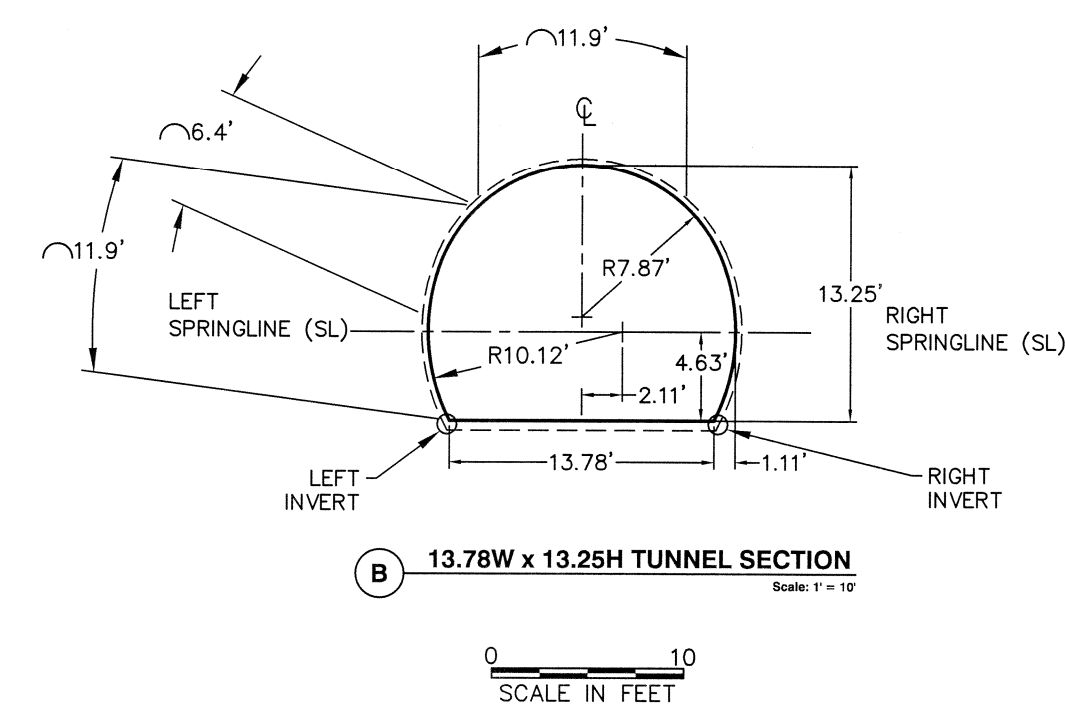
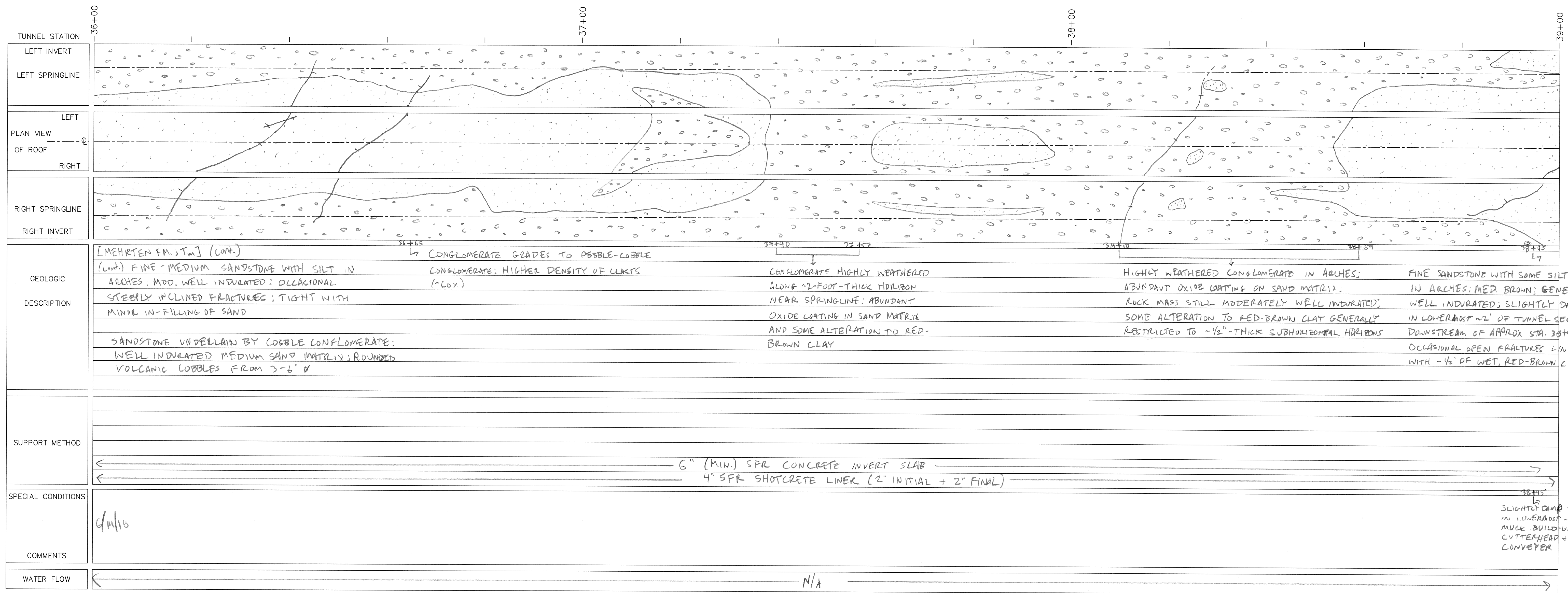
REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
TWO-MILE BAR TUNNEL			
TUNNEL GEOLOGIC LOG			
STA: 30+00 TO STA: 33+00			
			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1L</b>
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
		CHECKED: SWL	FILE: 3818G4_1L

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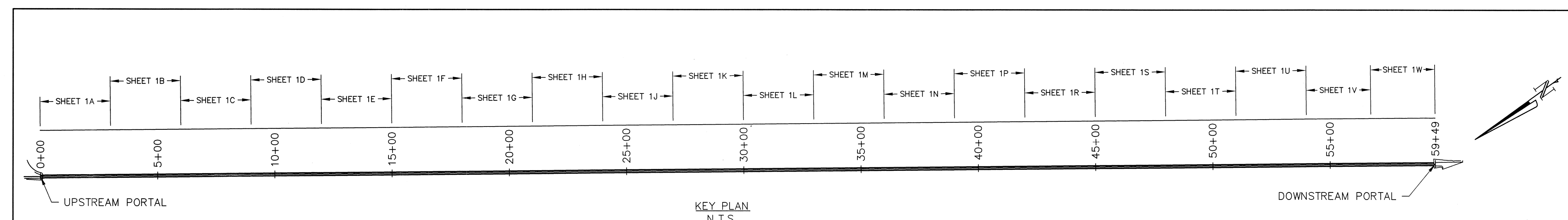
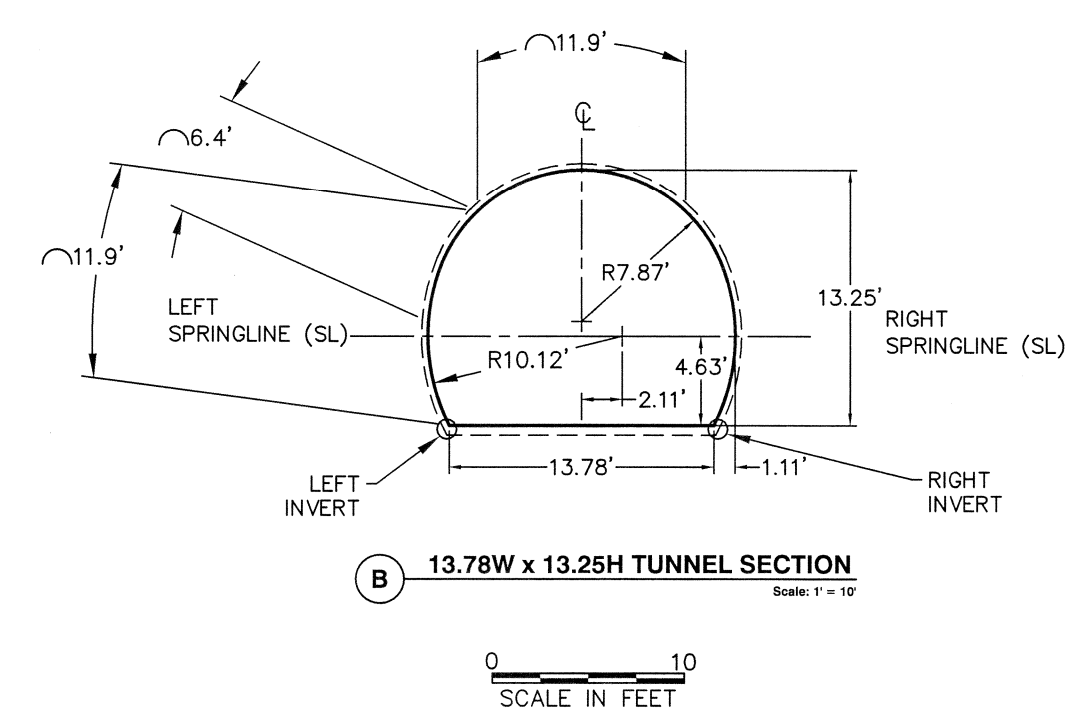
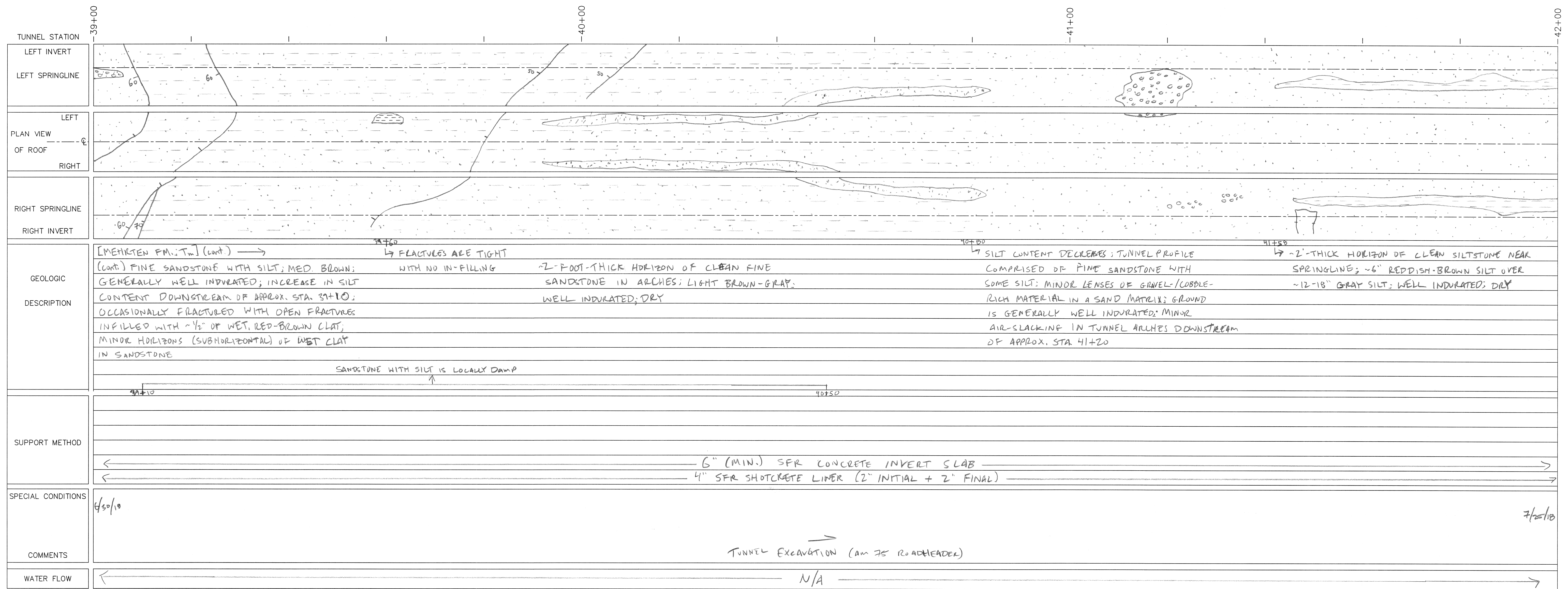
REV	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
<b>TWO-MILE BAR TUNNEL</b>			
<b>TUNNEL GEOLOGIC LOG</b>			
<b>STA: 33+00 TO STA: 36+00</b>			
<b>CONDOR EARTH</b>		<b>SHEET</b>	
		<b>1M</b>	
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
CHECKED:	SWL	FILE:	3818G4_F1

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0	June 2019	KVW	Post-Construction
REV#	DATE	BY	DESCRIPTION
<b>OAKDALE IRRIGATION DISTRICT</b>			
TWO-MILE BAR TUNNEL			
TUNNEL GEOLOGIC LOG			
STA: 36+00 TO STA: 39+00			
<b>CONDOR EARTH</b>			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1N</b>
JOB#:	3818C4	DRAWN: KW	SCALE: AS SHOWN
		CHECKED: SWL	FILE: 3818C4-F1

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REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction

**OAKDALE IRRIGATION DISTRICT**

**TWO-MILE BAR TUNNEL**

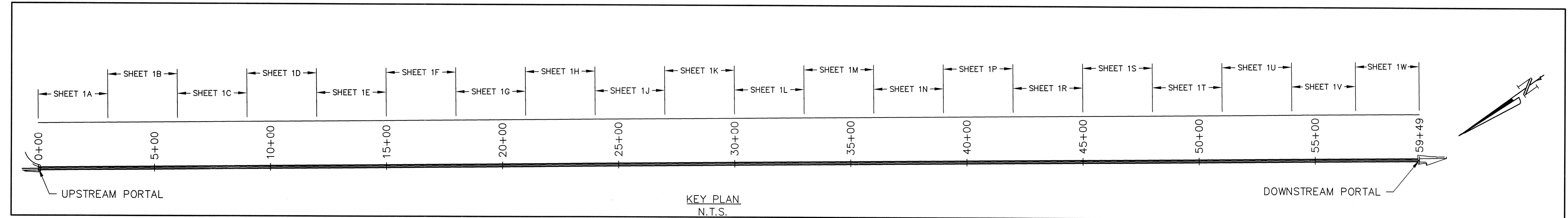
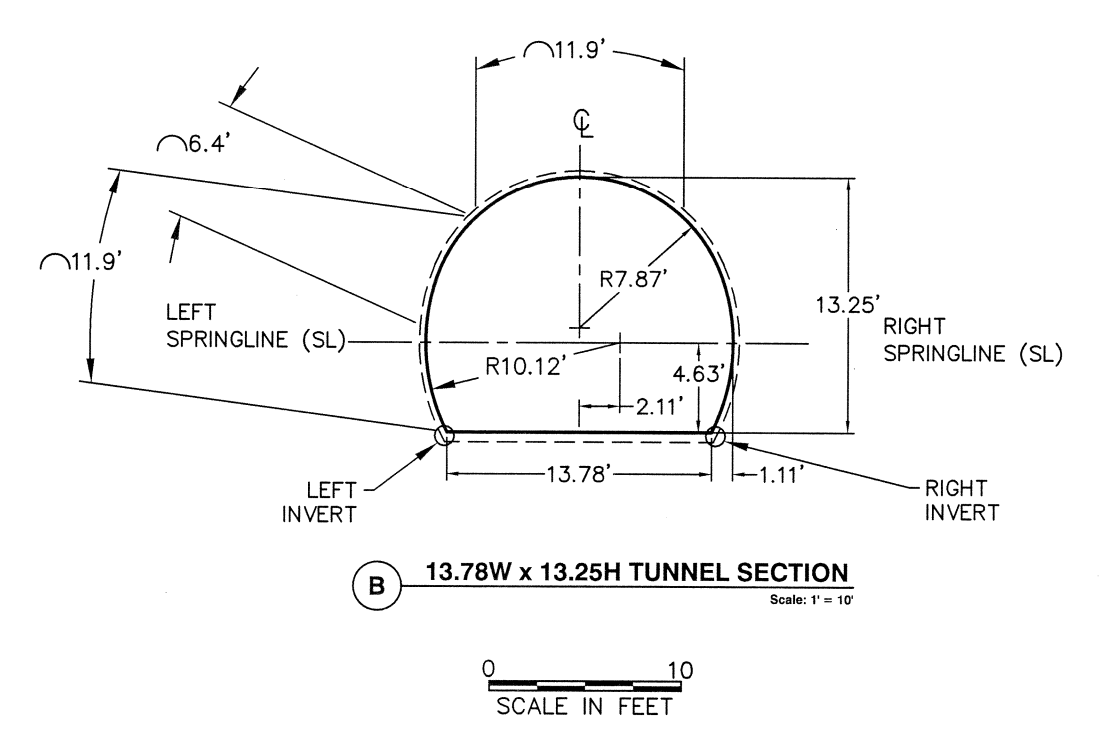
**TUNNEL GEOLOGIC LOG**  
STA: 39+00 TO STA: 42+00

**CONDOR EARTH**  
21663 Brian Lane  
P.O. Box 3905  
Sonoma, CA 95370  
(209) 532-0361  
fax(209) 532-0773  
www.condorearth.com

**SHEET 1P**

JOB# 3818G4 DRAWN: KW SCALE: AS SHOWN  
CHECKED: SWL FILE: 3818G4.F1

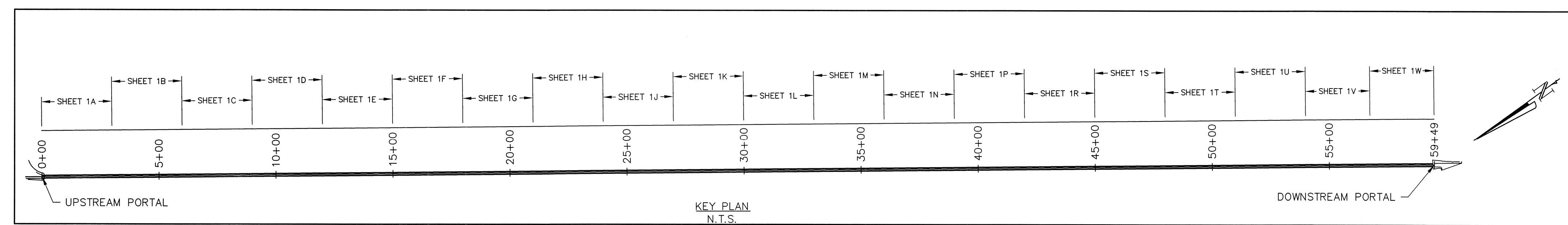
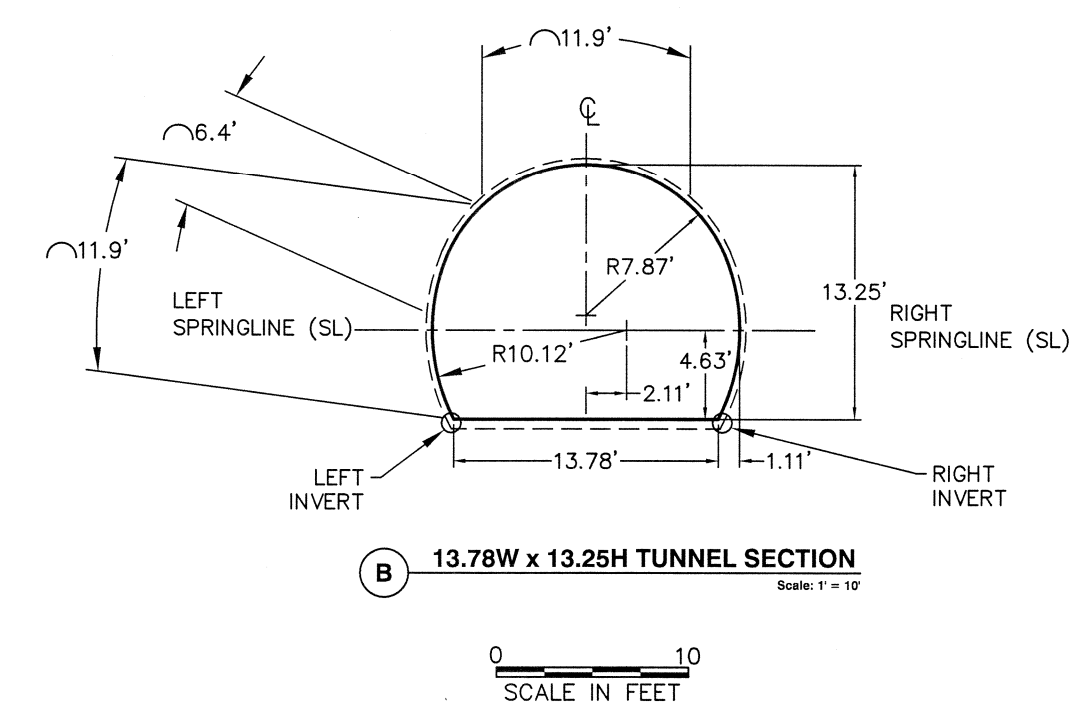
TUNNEL STATION	42+00	-43+00	-44+00	45+00
LEFT INVERT	[Diagram showing left invert profile]			
LEFT SPRINGLINE	[Diagram showing left springline profile]			
LEFT PLAN VIEW OF ROOF	[Diagram showing left plan view of roof]			
RIGHT SPRINGLINE	[Diagram showing right springline profile]			
RIGHT INVERT	[Diagram showing right invert profile]			
GEOLOGIC DESCRIPTION	<p>[MEHRTEN FM., Tm] (cont.) →          (cont.) FINE SANDSTONE WITH SILT; TYPICALLY MEDIUM BEDDED (12-24" THICK); MEDIUM BROWN TO LIGHT BROWN; WELL INDURATED; LOCALLY DAMP</p> <p>OCCASIONAL STEEPLY DIPPING FRACTURES, TIGHT TO OPEN WITH LITTLE TO NO IN-FILLING</p> <p>43+20          INDIVIDUAL BEDS OF FINE SANDSTONE GRADE TO SILTSTONE; GENERALLY RESTRICTED TO BEDS NEAR SPRINGLINE</p> <p>44+20          SILTSTONE NEAR SPRINGLINE GRADES TO COBBLE-RICH SANDSTONE; WELL INDURATED; ROUNDED VOLCANIC COBBLES TO 10" MAX.</p>			
SUPPORT METHOD	<p>6" (MIN.) SFR CONCRETE SLAB</p> <p>4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)</p>			
SPECIAL CONDITIONS				
COMMENTS	<p>7/25/18</p> <p>8/1/18</p>			
WATER FLOW	← N/A →			



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
TWO-MILE BAR TUNNEL			
TUNNEL GEOLOGIC LOG			
STA: 42+00 TO STA: 45+00			
			<b>SHEET</b>  <b>1R</b>
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
		CHECKED: SWL	FILE: 3818G4-F1

X:\Project\3000\_pr\3818G\_010\_2-Mile Bar\3818G4\_TMB\_Construction\3818G4\_CAD\DWG\Observations\3818G4-F1.dwg 12-13-17 08:33:37 AM kmckinley

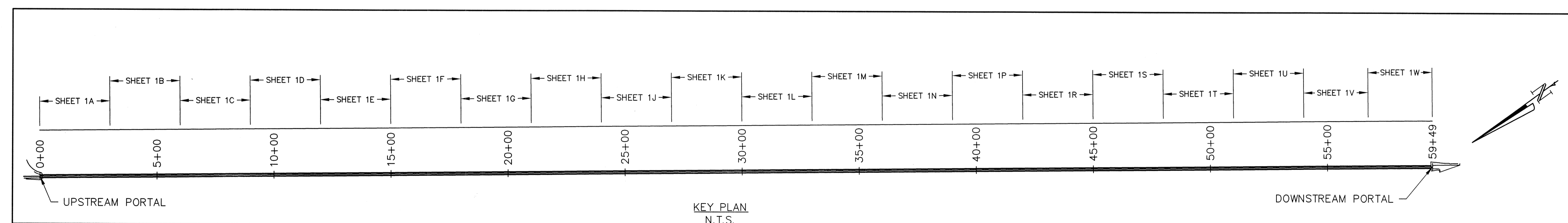
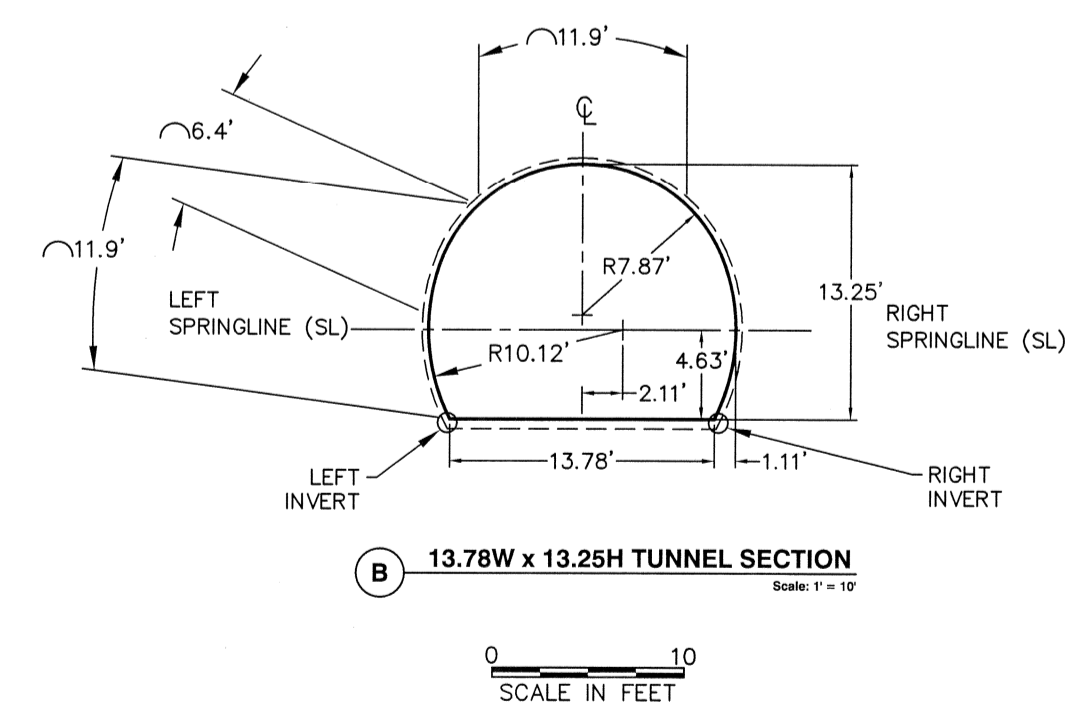
TUNNEL STATION	45+00	46+00	47+00	48+00
LEFT INVERT				
LEFT SPRINGLINE				
LEFT PLAN VIEW OF ROOF				← NOT MAPPED →
RIGHT SPRINGLINE				
RIGHT INVERT				
GEOLOGIC DESCRIPTION	<p>[MEHRTEN FM.] (cont) →</p> <p>(cont.) TUNNEL PROFILE COMPRISED OF FINE SANDSTONE WITH SOME SILT; MEDIUM BEDDED WITH ALTERNATING MED. BROWN AND GRAY-BROWN BEDS; COBBLE-RICH HORIZON NEAR SPRINGLINE WITH ROUNDED VOLCANIC COBBLES TO 10" Ø. GRADES TO PURE SILTSTONE DOWNSTREAM OF STA. 45+05; GROUND IS WELL INDURATED AND GENERALLY DRY WITH LOCAL DAMP ZONES</p> <p>↳ OVERALL SILT CONTENT INCREASES DOWNSTREAM OF STA. 46+50; INDIVIDUAL SANDSTONE BEDS GRADE TO SILTSTONE</p> <p>FRACTURES IN LOWER RIGHT RIB; LINED WITH POLISHED, SLICKENSIDED CLAY; DEEP BROWN; VERY WIDE (&gt;1"); STEEPLY DIPPING</p>			
SUPPORT METHOD	<p>← 6" (MIN.) SFR CONCRETE INVERT SLAB →</p> <p>← 4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL) →</p>			
SPECIAL CONDITIONS				
COMMENTS	<p>8/1/18</p> <p style="text-align: center;">→ TUNNEL EXCAVATION (AM 75 ROADHEADER)</p>			8/10/18
WATER FLOW				



REV#	0	DATE	June 2019	BY	KVW	DESCRIPTION	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>							
TWO-MILE BAR TUNNEL							
TUNNEL GEOLOGIC LOG							
STA: 45+00 TO STA: 48+00							
						<b>SHEET</b>	
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax(209) 532-0773 www.condorearth.com						<b>1S</b>	
JOB#	3818G4	DRAWN: KW	CHECKED: SWL	SCALE:	AS SHOWN	FILE:	3818G4_1S

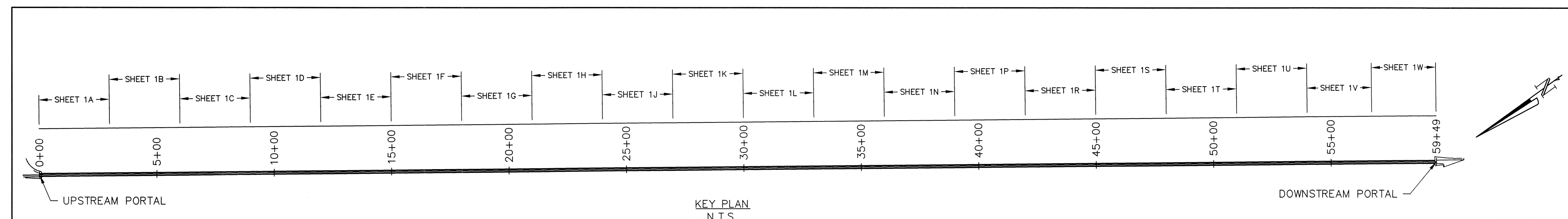
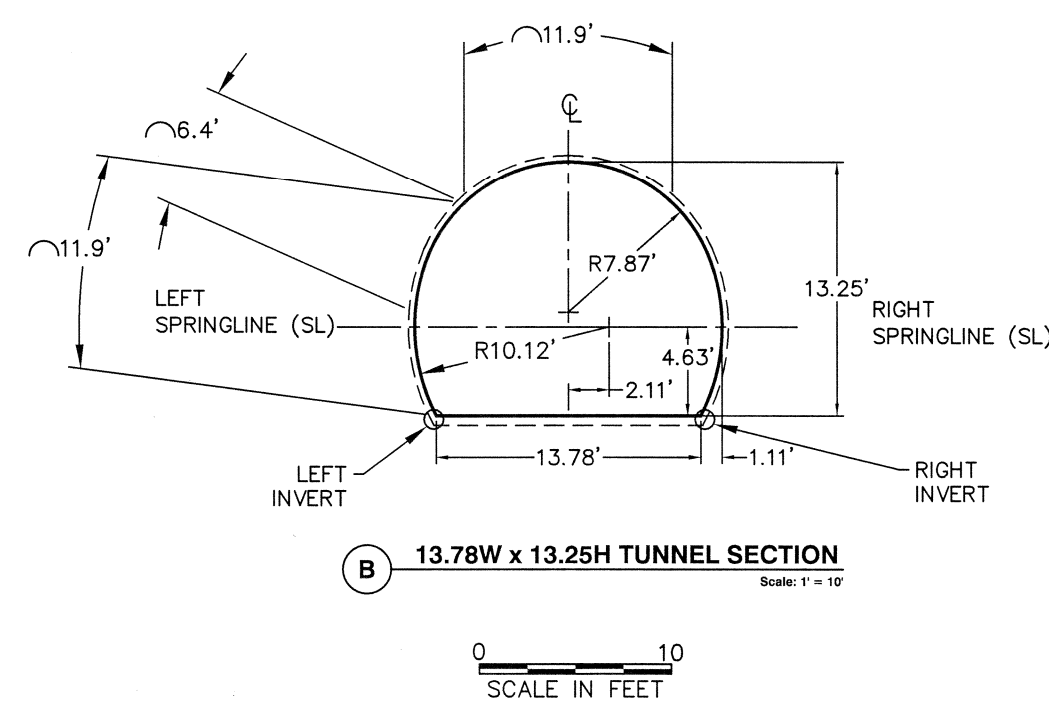
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TUNNEL STATION	48+00	49+00	50+00	51+00
LEFT INVERT	[Hand-drawn profile line]			
LEFT SPRINGLINE	[Hand-drawn profile line]			
LEFT PLAN VIEW OF ROOF	[Hand-drawn profile line]			
RIGHT SPRINGLINE	[Hand-drawn profile line]			
RIGHT INVERT	[Hand-drawn profile line]			
GEOLOGIC DESCRIPTION	<p>[MEHRKEN F.M.; TM] (cont.) → INCREASE IN OVERALL SILT CONTENT; GROUND IS          (cont.) FINE SANDSTONE WITH SOME SILT; MED. BROWN; WELL INDURATED; TRACE ROUNDED GRAVEL THROUGHOUT          TYPICALLY SAND-RICH AND DRY BELOW SPRINGLINE; SILT-RICH AND LOCALLY DAMP ABOVE SPRINGLINE; WELL INDURATED; MEDIUM TO THICKLY BEDDED (18-24" TYP.); LOCALLY CONTAINS ROUNDED VOLCANIC COBBLES (TO 8" Ø); OCCASIONAL STEEPLY DIPPING FRACTURES AND MINOR AIRSLACK IN LOWER RIBS</p> <p>→ GROUND GRADES TO FINE SANDSTONE WITH SILT; THIN- TO MEDIUM- SILT/CLAYSTONE INTERBEDS (6-18" THICK); SANDSTONE IS GENERALLY DRY AND SILT/CLAYSTONE LOCALLY DAMP, ESPECIALLY NEAR SPRINGLINE</p> <p>→ SLOW RAVELING GROUND IN TUNNEL CROWN COMPRISED OF POORLY INDURATED SILTY SANDSTONE</p>			
SUPPORT METHOD	<p>← 4" SFR SHOTCRETE TUNNEL LINER (2" INITIAL + 2" FINAL) →</p> <p>← 6" (MIN.) SFR CONCRETE INVERT SLAB →</p> <p>→ 4" x 4" W 2.7 WNF PINNED ACROSS ARCHES W/ SPLIT SETS + COVERED W/ APPROX. 6" SFR SHOTCRETE</p>			
SPECIAL CONDITIONS				
COMMENTS	<p>8/10/18 → TUNNEL EXCAVATION (AN 75 ROADHEADER) → 8/21/18</p>			
WATER FLOW	N/A			



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
TWO-MILE BAR TUNNEL			
TUNNEL GEOLOGIC LOG			
STA: 48+00 TO STA: 51+00			
			SHEET <b>1T</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			
JOB#	381864	DRAWN: KW	SCALE: AS SHOWN
		CHECKED: SWL	FILE: 381864-11

TUNNEL STATION	51+00	52+00	53+00	54+00
LEFT INVERT	[Hand-drawn profile line]			
LEFT SPRINGLINE	[Hand-drawn profile line]			
LEFT PLAN VIEW OF ROOF	[Hand-drawn plan view]			
RIGHT SPRINGLINE	[Hand-drawn profile line]			
RIGHT INVERT	[Hand-drawn profile line]			
GEOLOGIC DESCRIPTION	[MEHRTEN FM.] (cont.) FINE SANDSTONE WITH SOME SILT; LIGHT BROWN-YELLOW; THIN- TO-MEDIUM BEDDED WITH SILTY + CLAYEY INTERBEDS; THIN HORIZON OF ROUNDED GRAVEL NEAR SL; GENERALLY POORLY INDURATED WITH SLOW RAVELING IN CROWN; DRY		↳ GRADES TO MEDIUM-BEDDED FINE SANDSTONE WITH LITTLE SILT; POORLY INDURATED; SLIGHTLY WEATHERED; DRY	
SUPPORT METHOD	← 6" (MIN.) SFR CONCRETE INVERT SLAB → ← 6" MINIMUM (2" INITIAL + 4" FINAL) SFR SHOTCRETE LINER REINFORCED W/4"x4" W 2# WWF ACROSS ARCHES →			
SPECIAL CONDITIONS				
COMMENTS	6/24/18		→ END D/G → HOLE-THRU TUNNEL ADVANCE → W/AM 50 ROAD- → ROAD-HEADER   HEADER AT STA. → 2/21/18   2/20/2018	
WATER FLOW	N/A			

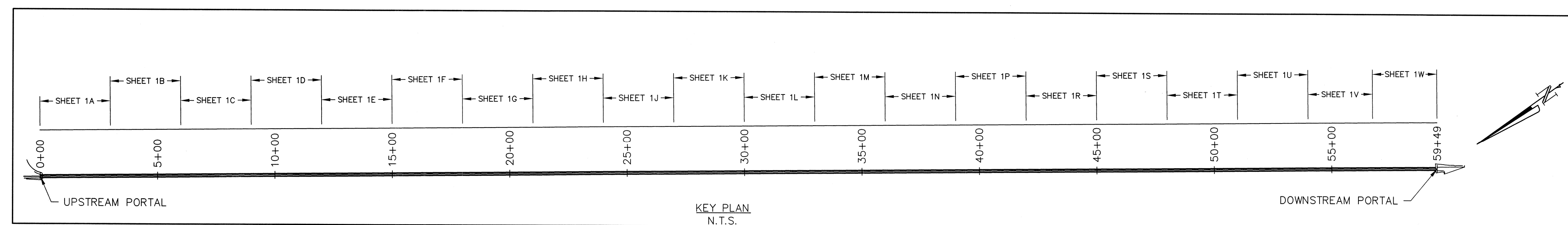
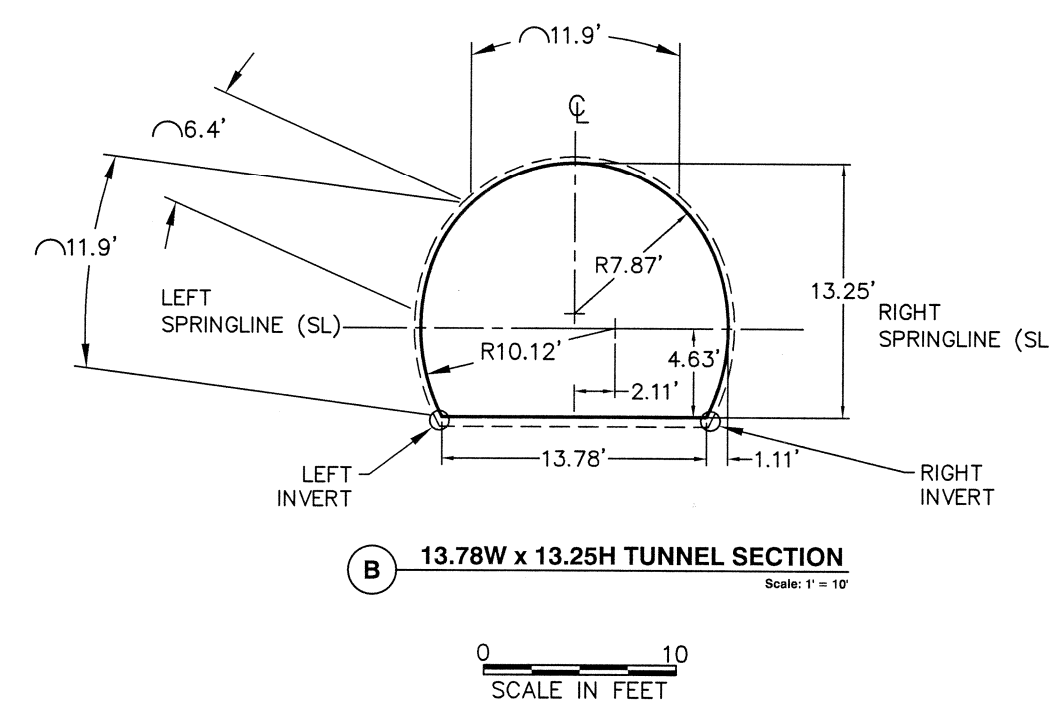


0	June 2019	KVW Post-Construction
REV#	DATE	BY DESCRIPTION
<b>OAKDALE IRRIGATION DISTRICT</b>		
<b>TWO-MILE BAR TUNNEL</b>		
<b>TUNNEL GEOLOGIC LOG</b>		
<b>STA: 51+00 TO STA: 54+00</b>		
<b>CONDOR EARTH</b>		<b>SHEET</b>
		<b>1U</b>
JOB# 3818G4	DRAWN: KW	SCALE: AS SHOWN
CHECKED: SWL	FILE:	3818G4_F1

X:\Project\3000-prj\3818G4\_OID 2-Mile Bar\3818G4\_TMS Construction\3818G4\_CAD\DWG\Observations\3818G4\_F1.dwg 12-13-17 08:40:29 AM kmackinley



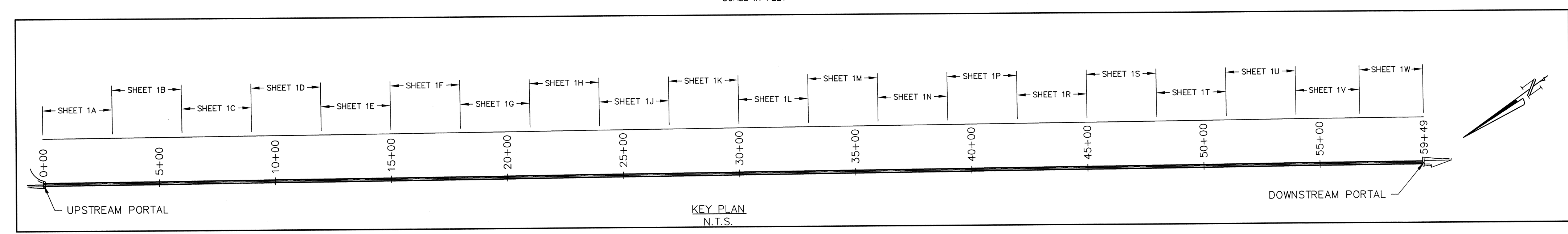
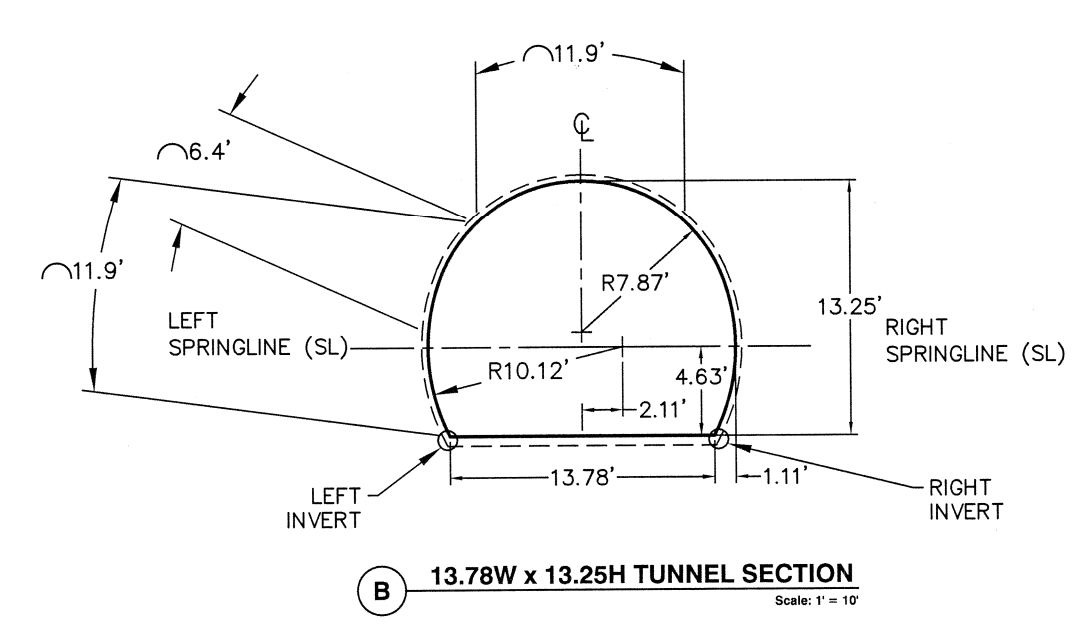
TUNNEL STATION	54+00	55+00	56+00	57+00
LEFT INVERT				
LEFT SPRINGLINE				
LEFT PLAN VIEW OF ROOF				
RIGHT SPRINGLINE				
RIGHT INVERT				
GEOLOGIC DESCRIPTION	[MEHAREN FM.; Tm] IN UPPER TUNNEL PROFILE: ORANGE-BROWN MEDIUM SANDSTONE WITH TRACE ROUNDED LOBBLES TO 5" Ø: LOW-TO-MODERATE HARDNESS; WEAK CONTACT DIPS MODERATELY UPSTREAM AND IS CHARACTERIZED BY 2-3" OF GREEN-GRAY CLAY BECOMES HIGHLY WEATHERED UPSTREAM OF VERTICAL FRACTURE AT STA. 54+56; ABUNDANT Fe OXIDE COATING ON ROCK + FRACTURE SURFACES; WEAK TO MODERATE HARDNESS; TYPICALLY YELLOW BROWN WITH VERY FINE GRAINED, WHITE-GRAY ROCK ON LEFT RIB		[GOPHER RIDGE FM.; Jg0] (CONT.) METAVOLCANIC ROCK: YELLOW-BROWN TO GRAY BROWN; MOD. TO HIGHLY WEATHERED WITH VARIABLE Fe OXIDATION ON JOINT SURFACES; MOD. FRACTURED; JOINTS GENERALLY LINED WITH CLAY WITH SOME QUARTZ-FILLED JOINTS; BLOCKY; MINOR AIRSLACKING ALONG CLAY-LINED JOINTS; ROCK GENERALLY WEAK WITH ZONES OF MOD. STRENGTH	
SUPPORT METHOD	4" x 4" W4.0 WNF FROM RIB TO RIB; PINNED WITH 1'- TO 6'-LONG SPLIT SETS; MIN. 6" SFR SHOTCRETE 4" SFR SHOTCRETE (2" INITIAL + 2" FINAL)		4" x 4" W4.0 WNF INSTALLED FROM RIB TO RIB; PINNED WITH 1'- TO 6'-LONG SPLIT SETS; MIN. 6" SFR SHOTCRETE PLACED OVER WNF 4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)	
SPECIAL CONDITIONS	STA. 54+00 REACHED ON 2/10/18 6" (MIN) SFR CONCRETE INVERT SLAB		6" (MIN.) SHOTCRETE INVERT SLAB REINFORCED WITH 4" x 4" W4.0 WNF STA. 57+00 REACHED ON 1/23/2018	
COMMENTS	TUNNEL EXCAVATION (AM 50 ROADHEADER)			
WATER FLOW	N/A			



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
<b>TWO-MILE BAR TUNNEL</b>			
<b>TUNNEL GEOLOGIC LOG</b>			
<b>STA: 54+00 TO STA: 57+00</b>			
<b>CONDOR EARTH</b>			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1V</b>
JOB#	3818G4	DRAWN: KW	SCALE: AS SHOWN
		CHECKED: SWL	FILE: 3818G4_F1

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TUNNEL STATION	57+00	58+00	59+00	60+00
LEFT INVERT	[Hand-drawn profile]			
LEFT SPRINGLINE	[Hand-drawn profile]			
LEFT PLAN VIEW OF ROOF	[Hand-drawn plan view]			
RIGHT SPRINGLINE	[Hand-drawn profile]			
RIGHT INVERT	[Hand-drawn profile]			
GEOLOGIC DESCRIPTION	<p>ROCK BECOMES MOD. STRONG; OCCASIONALLY FRACTURED; JOINTS INFILLED WITH QUARTZ; OCCASIONAL SUBVERTICAL FRACTURE ZONES WITH CLAY; MEDIUM SANDSTONE W/ COBBLES [MEHARTEN FM.; T.] IN TUNNEL ROOF; HIGHLY WEATHERED AND WEAK; CONTACT WAVY AND IRREGULAR AND CHARACTERIZED BY ~3'-THICK ZONE OF GRAY-GREEN CLAY</p> <p>ABUNDANT POLISHED CLAY ON JOINT SURFACES; MODERATELY FRACTURED; ROCK IS GENERALLY WEAK; CLAY-RICH ALTERATION ZONE ON RT. RIB + QUARTER ARCH; GRAY-GREEN</p> <p>[GOPHER RIDGE FM.; Jgo] UNLESS OTHERWISE NOTED</p> <p>METAVOLCANIC ROCK; YELLOW-BROWN TO GRAY-BROWN; MODERATELY TO HIGHLY WEATHERED WITH ABUNDANT Fe OXIDATION ON JOINT SURFACES; CLOSELY TO MODERATELY FRACTURED; JOINTS ARE TYPICALLY OPEN TO VERY WIDE AND INFILLED WITH QUARTZ; ROCK IS WEAK TO MOD. STRONG; LOW TO MOD. HARDNESS; OCCASIONAL VERY WIDE (12") ZONES OF CLAY-FILLED FRACTURES WITH SHEAR FABRIC</p> <p>GENERALLY ORIENTED SUBPERPENDICULAR TO TUNNEL ALIGNMENT; SUBVERTICAL</p>			
SUPPORT METHOD	<p>6" (MIN.) SHOTCRETE INVERT SLAB REINFORCED W/ 4"x11" W4.0 WWP (TO D/S PORTAL)</p> <p>4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)</p> <p>4"x4" W4.0 WWP INSTALLED ACROSS TUNNEL (RIB-TO-RIB) PINNED WITH 1'-6" LONG SPLIT SETS; MINIMUM 6" SFR SHOTCRETE PLACED OVER WWP</p> <p>8-FOOT EPOXY BOLTS AS SHOWN (□)</p> <p>4" SFR SHOTCRETE LINER (2" INITIAL + 2" FINAL)</p> <p>STEEL SETS (W6x25) AS SHOWN (□); MIN. 6" SFR SHOTCRETE B/W SETS</p>			
SPECIAL CONDITIONS	<p>STA. 57+00 REACHED DN 1/23/2018</p> <p>LARGE FALLOUT (~3 CU. YDS.) FROM LT. QUARTER ARCH ALONG CLAY-LINED JOINTS</p> <p>BEGIN EXCAVATION WITH AN SO ROADHEADER ON 12/21/17 @ STA 57+35</p> <p>EXCAVATED WITH HITUNGHI 720 EXCAVATOR WITH MILLING HEAD ATTACHMENT 11/30/17 - 12/14/17</p>			
COMMENTS	<p>TUNNEL EXCAVATION (AM C ROADHEADER)</p>			
WATER FLOW	N/A			



REV#	DATE	BY	DESCRIPTION
0	June 2019	KVW	Post-Construction
<b>OAKDALE IRRIGATION DISTRICT</b>			
<b>TWO-MILE BAR TUNNEL</b>			
TUNNEL GEOLOGIC LOG STA: 57+00 TO STA: 60+00			
<b>CONDOR EARTH</b>			<b>SHEET</b>
21663 Brian Lane P.O. Box 3905 Sonoma, CA 95370 (209) 532-0361 fax (209) 532-0773 www.condorearth.com			<b>1W</b>
JOB#	DRAWN	SCALE	FILE
3818C4	KW	AS SHOWN	3818C4_1
CHECKED	SWL		

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